

Evaluation of School Wellness Policies in North San Luis Obispo County

Report of the HEAL-SLO/ TCE School Wellness Grant

September 14, 2009

Prepared by:

STRIDE
Cal Poly State University
Kinesiology Department
San Luis Obispo, CA 93407-0386
Administrative office: 805-756-0673



Project Director

Ann Yelmokas McDermott, Ph.D., M.S., L.D.N.
STRIDE Director and Associate Professor
amcdermo@calpoly.edu
Direct phone: 805-756-6447

This evaluation and report represents the collaborative contributions of ten Cal Poly faculty and staff members with assistance from twenty Cal Poly students.

Component:

Key Informants

Project Leader:

David W. Hey, Ph.D., CHES
Assistant Professor

Walk/PA

Rosanna Taylor, MS
Advocate for Health, Nutrition and Physical Activity

Plate Waste

Arlene Grant-Holcomb, Ed.D., R.D.
Lecturer

Photo-documentary

Stephanie F. Teaford, BS
STRIDE Community Liaison

CAL POLY

This document is funded by a grant from *The California Endowment* administered by the San Luis Obispo County Public Health and the Healthy Eating Active Living San Luis Obispo (HEAL-SLO) group.

Table of Contents

Executive Summary	3
Definitions.....	7
Summary of Assessment Results	8
Full Assessment	9
Key Informant Interviews and Modified School Health Index Score Cards	10
Physical Activity Assessment Results.....	16
Plate Waste Study Results.....	23
Overall Recommendations.....	26
Attachment A - CDC-Recommended School Wellness Policies.....	30
Attachment B - Physical Activity Assessment Tables.....	31
Attachment C - Plate Waste Resources and Literature.....	33
Attachment D - Top Five “Level of Influence” Recommendations	34
Attachment E - National School Wellness Policy Concerns	36
References.....	38

Executive Summary

The California Endowment (TCE) Grant

A two year grant (October 2008-2010) was awarded to the San Luis Obispo County Public Health Department (SLO-PHD) so that outside agencies could engage in school wellness policy (SWP) advocacy and community activities to aid in combating the growing epidemic of obesity among the county's high risk populations. Under SLO-PHD oversight, Healthy Eating Active Living (HEAL-SLO) proposed school district outcomes, objectives, and indicators.

In March 2009, a research team from the newly formed STRIDE Institute at California Polytechnic State University was contracted to review and evaluate Lillian Larsen Elementary Schools' eating and physical activity environments with the intent to create baseline measures for school wellness improvement. This report summarizes STRIDE's studies, observations and recommendations. Before diving into the results of this study, an overview of the childhood obesity issue and previous federal, state and school efforts undertaken to address this issue might be helpful.

Background--childhood obesity:

Childhood overweight is one of the most serious problems currently affecting individual and public health.¹ The prevalence of American children classified as "overweight" or "obese" has tripled in the past 20 years² and currently those numbers conservatively are known to exceed 30 percent.³ Moreover, Centers for Disease Control (CDC) data showed that Mexican American children, between the ages 6-11, were 1.3 times more likely to be overweight as Non-Hispanic White Children.⁴ (<http://www.cdc.gov/nchs/data/hus/hus08.pdf>)

San Luis Obispo County data also shows increasing rates of childhood overweight and obesity.⁵ Seventy four percent of children ages 6 to 11 in 2007 report they do not meet daily exercise requirements and 25 percent reported that they ate fast food the previous day (California Data Book, San Luis Obispo County, 2007). Physical fitness tests conducted in the 2007-2008 school year show that 19.1 percent of San Luis Obispo 5th, 7th, and 9th grade children are not in the Healthy Fitness Zone, indicating "overweight" or "obese" students.⁶ During the same fitness testing year (2007), data showed that 33 percent of the Latino children were not in the Healthy Fitness Zone, indicating a health disparity correlating with the demographic distribution of low income families and the enrollment of Hispanic or Latino children in the north and the south portions of the county.⁷

Obesity occurs when a child consumes more calories than he or she uses. But this imbalance between calories consumed and calories used isn't merely the result of the child's behavior. It is the result of many different factors—including behavioral, environmental and genetic factors.

(<http://www.cdc.gov/obesity/childhood/causes.html>). One such factor is what experts call an "obesogenic" environment. Americans live in an environment which is promoting weight gain. For instance, today the United States produces about 4200 kcals (kilocalories) per day for every man, woman and child; whereas a range of only 1500-2500 kcals is necessary for healthy weight maintenance. Things like greater food availability, a decrease in home cooking, portion distortion and

decreased breakfast consumption, advertising regulations and sedentary pastimes all contributed to this change over the past thirty years.⁸ Our genetic makeup did not change over the past thirty years, but our environment including product marketing practices targeting children and families, certainly has changed.

Reasons for concern:

- 1. Being overweight or obese increases many health risks for children.** The CDC website points out that obese children and adolescents are at risk for health problems during their youth and as adults. For example, obese children and adolescents are more likely to have risk factors associated with cardiovascular disease (such as high blood pressure, high cholesterol, and Type 2 diabetes) than are other children and adolescents. (<http://www.cdc.gov/obesity/childhood/index.html>.) Additionally, a New England Journal of Medicine study concluded that “The prevalence of the metabolic syndrome is high among obese children and adolescents, and it increases with worsening obesity.” (<http://content.nejm.org/cgi/content/abstract/350/23/2362>)⁹ Metabolic syndrome is a “cluster of conditions that occur together, increasing the risk of heart disease, stroke and diabetes.” While having just one of these conditions — increased blood pressure, elevated insulin levels, excess body fat around the waist or abnormal cholesterol levels — isn’t diagnosed as metabolic syndrome, it still contributes to the risk of serious disease. The risk is even greater if more than one of these conditions occur in combination.¹⁰ <http://www.mayoclinic.com/health/metabolic%20syndrome/DS00522>
- 2. Childhood obesity increases the risk of obesityⁱⁿ adulthood.** Obese children and adolescents are more likely to become obese as adults.^{3,4} For example, one study found that approximately 80% of children who were overweight at ages 10–15 years were obese adults at age 25 years.³ The study also found that if overweight begins before 8 years of age, obesity in adulthood is likely to be more severe. (<http://www.cdc.gov/obesity/childhood/index.html>)¹¹
- 3. Obesity is starting at earlier ages, so we must take steps to prevent it sooner.** Nearly one in five U.S. four-year-olds are obese, according to a study published in the *Archives of Pediatrics and Adolescent Medicine*.¹² Yet, it’s possible to prevent some negative consequences if people are informed about the problem and encouraged to make changes. Making lifestyle changes such as increased moderate/vigorous exercise and improved nutrition can even delay or derail the development of serious diseases that may result from metabolic syndrome.¹³

Prevention—the logic of school intervention:

The serious and life-long health complications of excess body weight suggest that providing resources for primary prevention in children is advantageous. The economic costs incurred by the problem and its treatments are steep and may be underestimated.¹⁴ Schools represent a logical site for prevention because children spend approximately 6 hours a day attending classes most of the year, where 1-2 meals are consumed and resources such as school nurses and physical education programs are already in place.¹⁵

Ultimately, the reason these challenges must be addressed is for the health of the child.

Given the current school climate of budget cuts and/or resource limitations, STRIDE has attempted to offer recommendations which are less cumbersome for teachers and administrators. *The real key lies in creating systems where the “easier” or “default” choice is the healthy choice—at no extra cost to the school.* For example, schools could make water easier to obtain than juice and ensure

salad bars are at the right height so that it's easy to grab the carrots and tomatoes. Regarding physical activity, schools could provide enough recreational equipment so that kids will be moving instead of standing in line at recess.

School districts could also work with the city to make the daily walk to school safe and fun so that more children and families choose that option. These small, incremental steps will make a big difference in the health of students and staff.

"...a small change builds on itself. Whatever movement occurs is amplified, producing more movement in the same direction. A small action snowballs, with more and more and still more of the same, resembling compounding interest.

Peter M. Senge
Director, Systems Thinking and Organizational Learning
MIT Sloan School of Management

Previous County School Interventions

Federal and state agencies (e.g., The CDC website - 2009 and The California Center for Public Health Advocacy – 2004) have already established a recommendation list containing very broad school wellness policies designed to slow down and reverse the childhood overweight epidemic.

Recommendations are included in *Attachment A*. Moreover, school wellness policies for improving student nutrition and physical activity (in accordance with Public Law 108 - 265) were drafted and enacted fall 2006 for San Miguel school district. Although previous interventions have occurred, additional help has been provided through this grant.

Assessment Components and Model (part C of the 2008 TCE grant)

STRIDE's mission is to support your students and school in promoting a healthy weight across the lifespan by increasing healthy eating and levels of physical activity to improve health and reduce the risk of chronic disease. Components of the assessment were selected based on their alignment with and ability to impact the overall school wellness program. Components of the assessment included:

- Key informant interviews, Direct Observation and Modified School Health Index Score Cards
- Physical Activity Assessment
- Plate Waste Study
- Photo Documentary Analysis

A complete list of studies, observations and recommendations is included after each component, with a synthesis of recommendations at the end of the report.

When attempting to institute and maintain healthy lifestyle changes, an interwoven relationship exists between the student and their environment. Therefore, it is generally accepted that the most effective approach leading to healthy behaviors is to assess and intervene across all five levels of influence— student (usually referred to as “interpersonal”), family, school, community and public policy.¹⁶

(<http://www.dhs.state.or.us/publichealth/hpcdp/about.cfm#why>) Recommendations will be presented with this in mind. The five levels of influence are:

1. Student factors (example: individual attitude and knowledge of food, physical activity (PA) etc.)
2. Family factors (example: Socioeconomic status (SES), family role modeling, knowledge of food, cultural values etc.)
3. School/Work factors (example: school food, teacher and staff role-modeling and messages, built environment, water availability etc.)
4. Community factors (example: demographics, SES, walking and biking to school, cultural values etc.)
5. Public Policy (example: school wellness policy, budgetary resources allotted to wellness, school facilities and staff etc.)

Although the school cannot be responsible for all change, it's relatively easy to see that a strong public policy (example: school wellness policy) will have greater influence on resultant behaviors than one individual who just happens to bike or walk to school.

Definitions

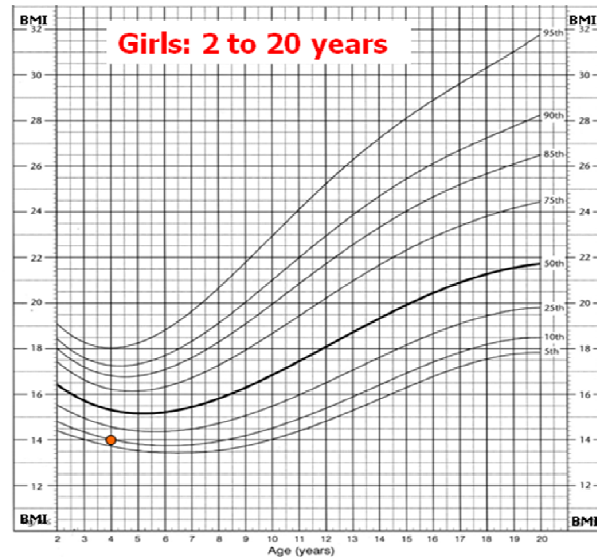
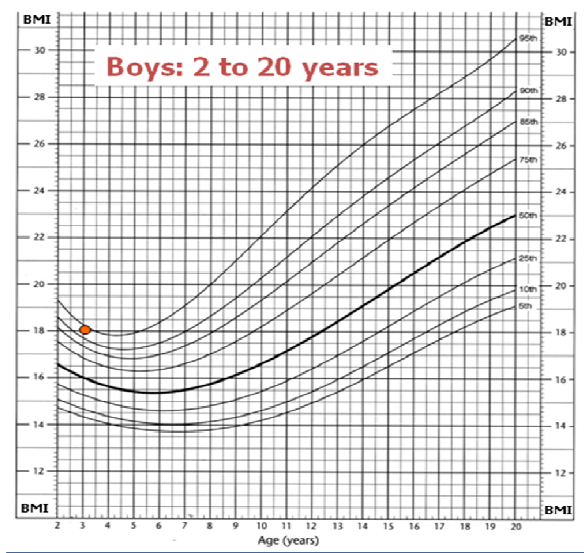
Body Mass Index (BMI) is a number calculated from a person's weight and height. BMI provides a reliable indicator of body fatness for most people and is used to screen for weight categories that may lead to health problems.

Weight classifications are defined in the chart below.

Weight Classifications using Body Mass Index (BMI)			
		http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html http://www.cdc.gov/healthyweight/assessing/bmi/	
Children		Adults	
Use age sex-specific growth charts		BMI number calculated from a person's weight	
<i>Underweight:</i>	≤ 5 th percentile	<i>Underweight:</i>	BMI ≤ 18
<i>NORMAL Weight:</i>	6 - 84 th percentile	<i>NORMAL Weight:</i>	BMI 18-24
<i>OVERWEIGHT:</i>	85 - 94 th percentile	<i>OVERWEIGHT:</i>	BMI 25-29
<i>OBESE:</i>	≥ 95 th percentile	<i>OBESE (note 3 obesity classes):</i>	BMI 30+

www.cdc.gov/healthyweight/assessing/bmi/index.html.

CDC BMI-for-Age Charts for Boys and Girls



Summary of Assessment Results

School Health Policies/Nutrition:

At Lillian Larsen, school foods meet or exceed state mandates for nutritional quality and written school nutrition and physical activity policies are in place. The school also does a good job of restricting access to foods and beverages of little nutritional value, while promoting healthy food and beverage choices. The school could do a better job of communicating school policies to students, parents, staff and visitors, and involving them in the food offerings at school, including prohibiting use of food as a reward or punishment, promoting healthy fundraising efforts, and serving as healthy role models themselves in terms of food choices and fitness. Probably the single biggest thing the school could do in this area is to have (or at least pilot having) recess before lunch so that students don't rush through their lunch but have an adequate amount of time to eat. Also, right after people have eaten they are less likely to engage in moderate and vigorous physical activity.

Physical Education and Other Physical Activity:

The school has a quality PE program in place (with 3rd, 7th and 8th grades running every day) and a quality PE instructor in place. Yet, direct observations demonstrated that in large PE classes over 60% of the time is spent doing no activity at all. The most pronounced issue was the fact that the older students (7th and 8th grade) were not moving when their activity levels were measured. The older students are often looked up to as role models by the younger students. When the older students don't move during recess or PE, it sends a negative message to the younger students who watch and emulate them. It is strongly recommended that the older students (as well as any adults involved) start moving and participating more during PE and recess and become leaders for change. Improvements could also be gained by choosing PE activities that encourage continuous movement, such as soccer, running/walking clubs, jump roping, ultimate Frisbee etc. versus activities with little movement, such as baseball. It was also recommended to include more movement during recess and to advocate against potential future cutbacks to the PE program.

Lillian Larsen lacks sidewalks, cross walks and safe railroad crossings—which calls for walk-ability improvement. Currently, nearly 45% of the students are driven to school. The school could increase physical activity and prevent excessive weight gain in students if it implemented a “walking school bus” where parents or other adults escort a group of children on a set route to school.¹⁷ (<http://www.walkingschoolbus.org>). For a long-term strategy, the school could also encourage the city to create safe pathways.

Marketing Campaign:

Although Lillian Larsen has many positive messages regarding food choices around the campus, it could still use more. It is recommended that the school establish a student-run and/or parent-run committee to implement many of the marketing recommendations in the body of this report. For instance, a student-run committee could establish/handle non-food reward systems for student helpers, distribute “caught you being healthy” coupons for healthy meals from home, and run the fruit and vegetable taste tests and

“fruit/vegetable of the month” campaigns. Student committee members would receive valuable experience and other students would possibly respond more readily to peer-led efforts.

In the end, addressing these challenges is all about protecting the health of the child. As you delve into the following full assessment and put these findings to use, please call us for support. Your school has already shown a great willingness to work on wellness. As you continue to invest time and energy toward this goal, you can expect increased student wellness and improved educational outcomes at Lillian Larsen Elementary school.

Full Assessment

Using the Ecological Model: Five Levels of Influence

Individually-based approaches to overweight and obesity prevention and treatment are widely viewed as ineffective by themselves; because they do nothing to alter the environmental factors believed to contribute to the population-wide overeating and inadequate physical activity.¹⁸ This study used ecological models for assessment and intervention because it takes the connections between people and their environments into consideration.¹⁹ The focus remains on environmental factors (barriers to healthy eating and physical activity) and moves away from simply “blaming the person” for their health status.²⁰ Researchers and practitioners systematically assess and intervene on each of the following five levels of influence:

1. Student factors (example: individual attitude and knowledge of food, Physical Activity (PA) etc.)
2. Family factors (example: SES, family role modeling, knowledge of food etc.)
3. School/Work factors (example: built environment, water availability etc.)
4. Community factors (example: demographics, SES, walking and biking to school etc.)
5. Public Policy (example: school wellness policy, budgetary means to accomplish objectives)

Broad Research Goals

Once baseline measures were collected and analyzed; overarching program goals were established to drive stronger school wellness policy recommendations. They included:

- a. Advance policy and environmental changes that promote healthy eating and physical activity options in school.
- b. Help initiate sustainable program initiatives which would help motivate students to eat healthier and engage in more physical activity.
- c. Strive to make the “easier” or “default” choice the healthier choice.
- d. Improve the health of the staff as well as the health of the students.

Data Collection Theory:

The newly formed STRIDE research team targeted socio-ecological domains in-line with national wellness policy recommendations and theory to guide data collection and ultimately provide

intervention recommendations. Domains--health behavior thought most to influence eating and physical activity—included:

1. Individual – measured actual physical activity during recess and physical education – data collection methods were direct observation using a standardized physical activity assessment instrument and photo documentary for communication clarity when presenting data.
2. Individual – measured actual amount of food consumed or thrown away – data collection method was a plate waste study. Photo documentary utilized to supplement recommendations.
3. Family – measured family involvement in food selections (school and home) – data collection method was key informant interview and modified school health index score card instrument. The photo documentary was utilized to supplement box lunch contents brought from home or purchased on the way to school; document volume and portion control, and provide clarity for presenting recommendations.
4. School – measured built environment of the physical barriers to healthy eating and physical activity -including access and promotion of healthy food options – data collection method was photo documentary, key informant interviews, and modified school health index score cards.
5. Community – measured built environment of the physical barriers to healthy eating and physical activity – data collection included: photo documentary including examples of safe routes to school and potential business or vendors near the school, and key informant interviews.
6. Policy – measured written school wellness policy – data collection method was key informant interview and modified school health index score card. Completion by key informants (N=5) specific to each school site. Specific interest areas included: identification of the barriers and successes to the school wellness policy since it was implemented in 2006.

Data Collection Methods

Data collection revolved around five measurement activities: photo documentary (built environment), direct observation (physical activity and cafeteria), key informant interview (n=10), modified elementary school health index score card (n=10), and a plate waste study. Please view the photo documentary analysis. Suggestions from the photo documentary analysis have been integrated with the component and overall recommendations.

Key Informant Interviews and Modified School Health Index Score Cards - Lillian Larsen School (K-8), San Miguel, California

Lillian Larsen School Wellness Policy:

Research Technique: Key Informant Interviews and Modified School Wellness Score Cards

Person Responsible: David Hey, PhD, CHES

Cal Poly Kinesiology – STRIDE

Data Collection: March – July, 2009

Date of report: August 11, 2009

Key informant interviews: are qualitative (descriptive) in-depth interviews with people who know what is going on in a community; or in our case Lillian Larsen School. These “key leaders” or wellness “experts” (e.g., PTO moms, wellness committee members, health and PE teachers, food service managers, nurses and school district administrators) have first-hand knowledge, so we asked for their personal observations and unique expertise concerning the school’s wellness policy. As researchers, we were *very interested* in how the leaders’ view their school wellness policies, and if in fact, they view the policies *are working*, or *effective*.

As a result, these school experts have provided *valuable insight* on the nature of specific problems (real or in their own minds - *perceived*) and each “expert” gave recommendations for solutions that outsiders like the STRIDE research team could only speculate on. Since each “key informant” has special knowledge of their area of expertise, not all of the individuals sampled completed the three scorecard modules from the modified CDC score card index.

Readers are reminded that one obvious limitation to conducting research with a small sample size is that not all school wellness policy (SWP) successes and challenges will be brought to light. Findings here are not “all conclusive” but may prompt ideas for other existing opportunities, supports and services to teachers, staff, students and their families.

Key Informant Interviews

Results:

Key Informant Interview Lillian Larsen Elementary, San Miguel (n = 5)

Interviewees:

- a. 3 teachers (3rd, 7th and 8th) – conducted by telephone
- b. 1 administrator – conducted in person
- c. 1 food service staff member – conducted by telephone

Existing Successes since 2006 based on Key Informant Perceptions:

1. School foods are meeting or exceeding state mandates for nutritional quality (SB 12/965 requirements);
2. Meals include lower fat options;
3. Snack offered for 7-8th grade (pretzels, bagels, cream cheese, fresh fruit, and whole grain muffins). Cookie was cancelled in favor of healthier selections;
4. Fundraising efforts supportive of healthy foods and eating in place;
5. Classroom celebrations are much healthier since 2006;
6. Restriction of unhealthy foods are in place (namely, restriction of soda);
7. Low-fat milk is available;
8. Clean /Pleasant atmosphere to eat;
9. With most students eating school lunch, less concern about what is in box lunches from home;
10. Quality PE program in place (3rd, 7th and 8th are running every day) – Other grades classroom teachers are running physical education;

11. Quality PE instructor in place (Eileen Rogers, Physical Educator, is enthusiastic and keeps students moving);
12. Three aides on duty for 4 rotations of lunch;
13. 20 minute lunch with 20 minute recess following (15 minutes for grades 4-6th);
14. School Wellness Committee meets regularly and the Creation of “Healthy Hornets” student-peer health educators who advocate for health and team teach physical activity games as part of PE curriculum in lower grades;
15. No competitive food offered in food service program – however some school organizations do;
16. Recycling and composting by adult volunteer;
17. Washable trays are cleaned and re-utilized;
18. Christina Wilkinson, 7th grade teacher, is in charge of school garden that periodically provides for the salad bar – she is looking to expand garden size and offerings in the center courtyard;
19. Steve Kalar and Jean Hoffman, from San Miguel Resource Center (SMRC), offer “farm to table” activities which is viewed as very valuable and will help foster interest in the school garden;
20. Fruit and vegetable taste tests are planned for fall 2009 in classrooms/lunch room.

Existing Challenges or Key Informant Perceived Barriers to Overcome:

*For the purposes of this interview, “concern” indicates that less than 3 of the 5 key informants felt the associated area had room for improvement, but some concern was still voiced. ** “Challenged” indicates that 3 or more of the 5 key informants felt that the associated area had much room for improvement.

1. Students are bused to school (major problems with walk-ability to Lillian Larsen – lack of sidewalks, cross walks, and safe rail road crossings);
2. Little room to walk to school, difficult to cross the streets, hard to follow safety rules, drivers on Mission Street frequently speed faster than the speed limit;
3. There is no safe rail road crossing that exists for children walking to school;
4. Aesthetically, the walk to school isn’t becoming -but the town is currently working to change that by planting trees, flowers, benches and street lights;
5. Salad bar is being utilized (with continued future efforts of making the salad bar more attractive to students); (The photo documentary also noted that the salad bar was too high for younger, shorter students to have a full view of offerings.);
6. Adequate time to eat (concern* - but not by all);
7. Currently the school schedule has lunch first -then recess, this order was challenged by the majority of respondents;
8. Student and family involvement in food offerings (challenged**--more involvement needed);
9. Offering food as reward during school hours (challenged);
10. Students bringing high calorie snacks from outside school (challenged—the question raised was *how* the students got these snacks, at the market on the way to school or another way?);
11. All school staff acting as positive role models for food/soda (challenged);
12. School wellness policy is solid working document (challenged – good start but requires further detail with benchmarks for success);
13. Although not many, there still were some unhealthy food fundraisers which caused some concern (challenged);
14. Physical activity during recess (challenged); monitors could encourage more movement;

15. Some school organizations selling food after hours as fundraisers (challenged);
16. Christina Wilkinson is in charge of school garden that provides for “hands on learning” in the school vegetable garden and cafeteria salad bar – Christina is worried that if she receives approval to expand garden in courtyard she won’t have the necessary human resources to maintain a thriving garden (stated concern);
17. Budget cuts have affected the amount of physical education students receive (major concern);
18. Students (K-6th grade) snacks at 10a.m. are brought from home and the quality of those snacks (challenged by majority of key informants);
19. Students active at least 50% of the time in large PE classes (over 40-50 students in class);
20. Cutbacks to the physical education program (time allotted and resources due to current school budget and national economic crisis (stated concern by key informants);
21. Professional development for teachers and staff on hold because of budget (concern);
22. Time for students to eat lunch is adequate (20 minutes) but children are rushing to get through meal to begin recess (concern).

Modified School Health Index Score Cards were developed by the CDC in 2005 as a means to evaluate school wellness policies. California Project LEAN modified the score cards to better match with the California State Wellness Policy (SWP) mandates. The four SWP modules we utilized check and score various components (e.g., physical activity, nutrition, communication, and food service) as stated in the respective school wellness policy.

By completing the score cards, each school can easily identify and prioritize changes that will improve policies and programs related to student health. Again, with module score cards completed by “key leaders” schools can personally tailor their own programs to meet the needs of their schools.

Score cards included: Elementary School Physical Activity and Nutrition: Module 1: School Health and Safety Policies and Environment - Module 3: Physical Education and Other Physical Activity Programs - Module 4: Nutrition Services. Areas scored ranged from: Wellness Policy “Fully in place” (3) - Wellness Policy “Partially in place” (2) - Wellness Policy “Under Development” (1) - Wellness Policy “Not in Place” (0)

Results of Modified School Wellness Scorecards: Mean Scores for Lillian Larsen Elementary School (n = 5)

Module 1: School Health and Safety Policies and Environment (n = 5) Mean Score = X

Policy	Fully in Place 3	Partially in Place 2	Under Development 1	Not in Place 0
1. Written school nutrition and physical activity policies	X = 2.8			
2. Restrict access to foods and beverages of minimal nutritional value	X = 2.8			
3. Restrict access to other foods that do not meet SB 12 requirements	X = 2.9			
4. Communicate school policies to students, parents, staff, and visitors		X = 2.3		
5. Representative school health committee	X = 2.9			
6. Recess	X = 2.8			
7. Access to physical activity facilities		X = 2.5		
8. Adequate physical activity facilities		X = 2.3		
9. Prohibit using food as reward or punishment		X = 2.3		
10. Fundraising efforts supportive of healthy eating		X = 2.4		

Module 3: Physical Education and Other Physical Activity Programs (n = 5) Mean Score = X

Policy	Fully in Place 3	Partially in Place 2	Under Development 1	Not in Place 0
1. 200 minutes of physical education every 10 days		X = 2.5		
2. Sequential physical education curriculum		X = 2.4 - only 3rd 7th and 8th grade		
3. Students active at least 50% of class time	X = 2.8			
4. Adequate teacher/student ratio		X = 2.3		
5. Teachers avoid practices that result in student inactivity		X = 2.4		
6. Physical education is enjoyable	X = 2.8			
7. Promote community physical activities		X = 2.5		
8. Instruction for special health care	X = 2.6			

needs				
9. Credentialed physical education teachers	X = 2.6			
10. Professional development for teachers		X = 2.4		
11. Participation in extracurricular physical activity programs	X = 2.7			
12. Community access to school facilities		X = 2.5		

Module 4: Nutrition Services (n = 5) Mean Score = X

Policy	Fully in Place 3	Partially in Place 2	Under Development 1	Not in Place 0
1. Snack/a la carte and beverages meet SB 12 and SB 965	X = 2.8			
2. Promote healthy food and beverage choices	X = 2.6			
3. Student and family involvement in the food offerings at school		X = 2.5		
4. Breakfast and lunch programs	X = 2.7			
5. Low-fat and non-fat milk available	X = 3.0			
6. Meals include appealing, low-fat items	X = 2.8			
7. Food purchasing and preparation reduces fat	X = 2.7			
8. Adequate time to eat school meals		X = 2.1		
9. Clean, safe and pleasant cafeteria	X = 2.8			

Physical Activity Assessment Results

Mode of Transportation to School

On June 3, 2009, a team of three researchers observed both the front and rear entrances to Lillian Larsen School from 7:45am until ten minutes after the start of the school day. Researchers observed and recorded how many students walked or bicycled to school, rode the school bus or arrived in a passenger vehicle. The purpose of this direct observation was to evaluate how many students were adding to their minutes of total daily physical activity by actively commuting to school. Careful attention was paid to defining the various categories within the modes of transportation—for example, if the student was dropped off at the corner rather than walking the entire way, it was noted as car transportation.

Figure 1. Results of Direct Observation of Student Transportation Mode (N=391) at Lillian Larsen School on spring 2009 Morning Commute

Mode of Transportation	Number Observed (N=391)	Percent of Students
Walk	136	34.78
Bike	7	1.79
School Bus	78	19.95
Car	169	43.22

Physical Activity at Recess

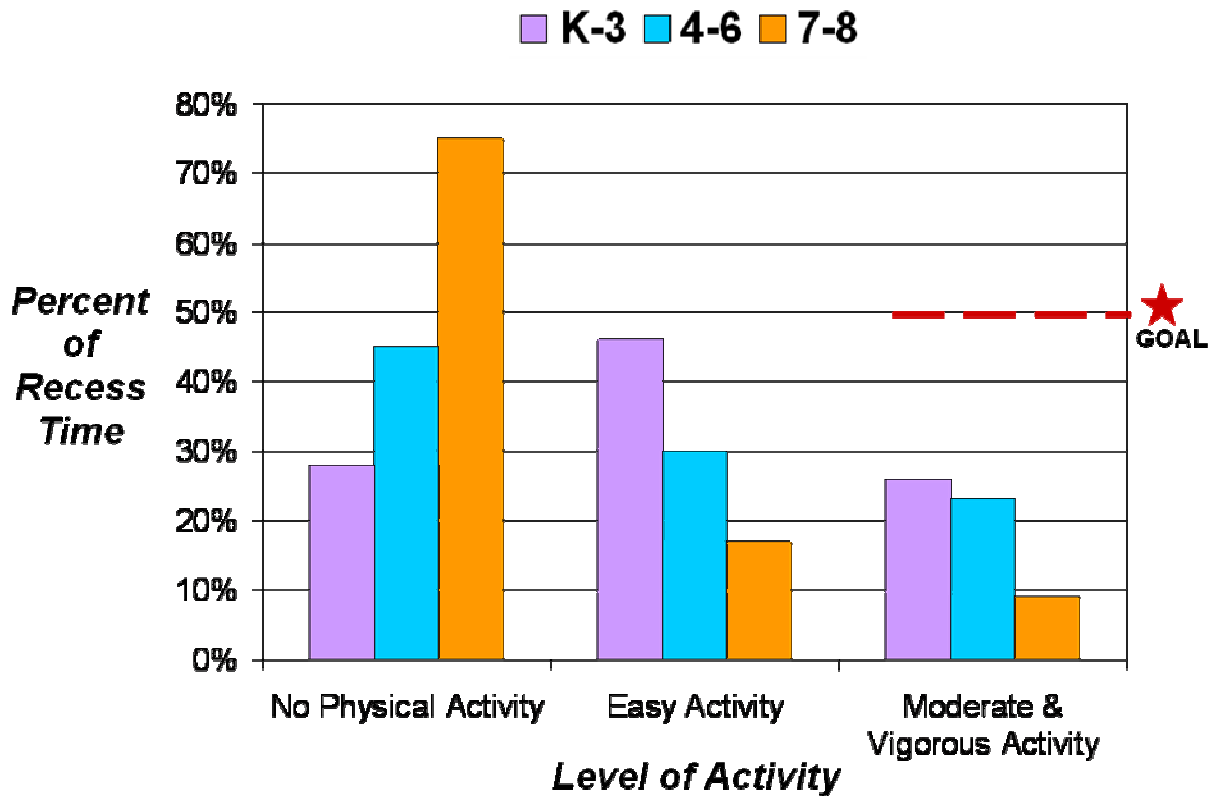
On June 3, 2009, a team of four researchers observed students engaged in physical activity during recess for children in all grade levels (Kindergarten through 8th grade). The idea was to objectively observe how much of the recess time the students were truly moving. Researchers collected data on both ‘overweight’ and ‘normal weight’ male and female children, during the following recess periods:

- 1st – 3rd grade morning recess
- 4th – 6th grade morning recess
- K-1st grade lunch recess
- 2nd-3rd grade lunch recess
- 7th-8th grade lunch recess

Four children were observed during each recess period; an overweight male, an overweight female, a normal weight male and a normal weight female. Each researcher chose one child to observe for the entire recess period, making certain the child was unaware of observation. Each 15 seconds, researchers recorded the intensity of the child’s activity (none, easy, moderate or vigorous) and their level of social engagement (socially engaged or alone). For the purposes of this study, intensity was derived by observation, in accordance with the following criteria: ‘No Physical Activity’ was defined as standing still or sitting, ‘Easy Activity’ as walking, ‘Moderate Activity’ as jogging and/or jumping and ‘Vigorous Activity’ as running. Four children were also observed during morning recess on April 29, 2009. The figures below demonstrate the results of direct observation and physical activity during recess. Detailed tables for figures 2 through 6 may be found in *Attachment B*.

Figure 2

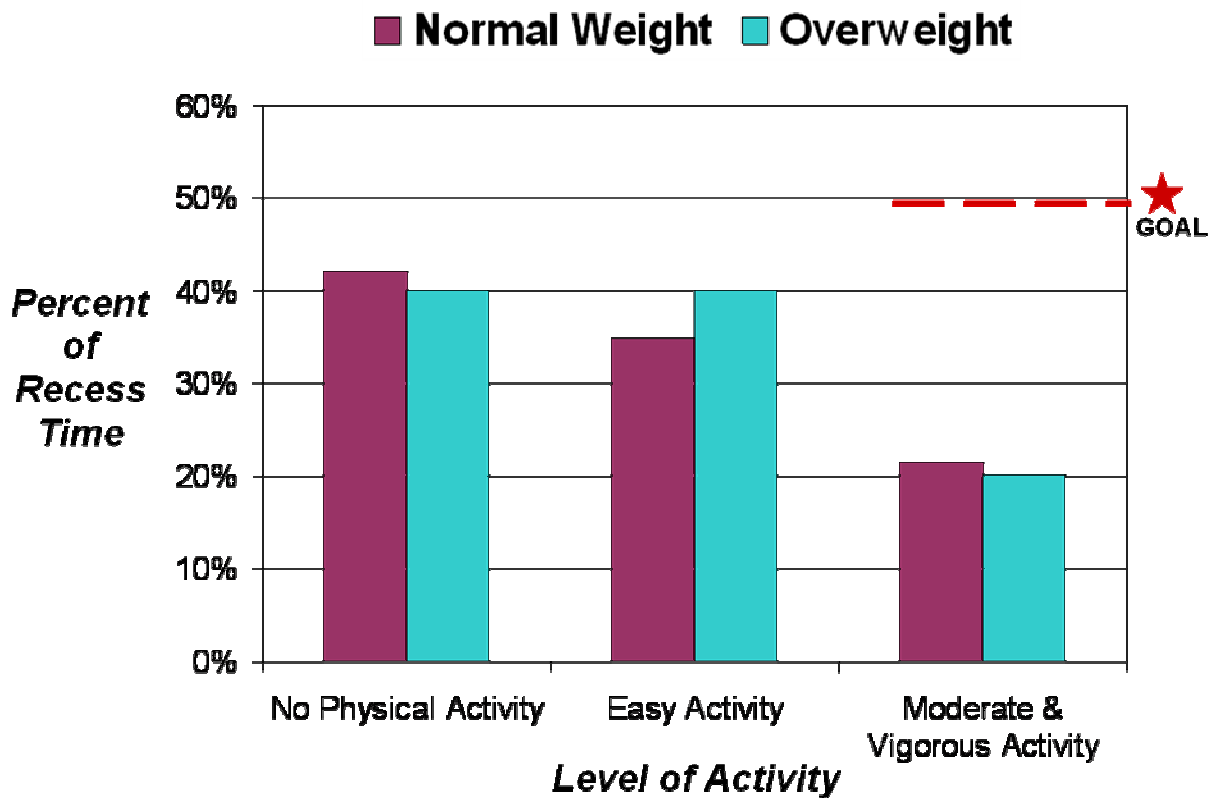
Percent of Recess Spent in Activity Reported by Grade



Take Home Message: The problem which stood out the most is the fact that the older students (7th and 8th grade) were not moving when their activity levels were measured. Oftentimes the older students are looked up to as role models by the younger students. When the older students don't move during recess or PE, it sends a negative message to the younger students who watch and emulate the older kids. It is strongly recommended that the older students (as well as any adults involved) start moving and participating more during PE and recess and become leaders for change.

Figure 3

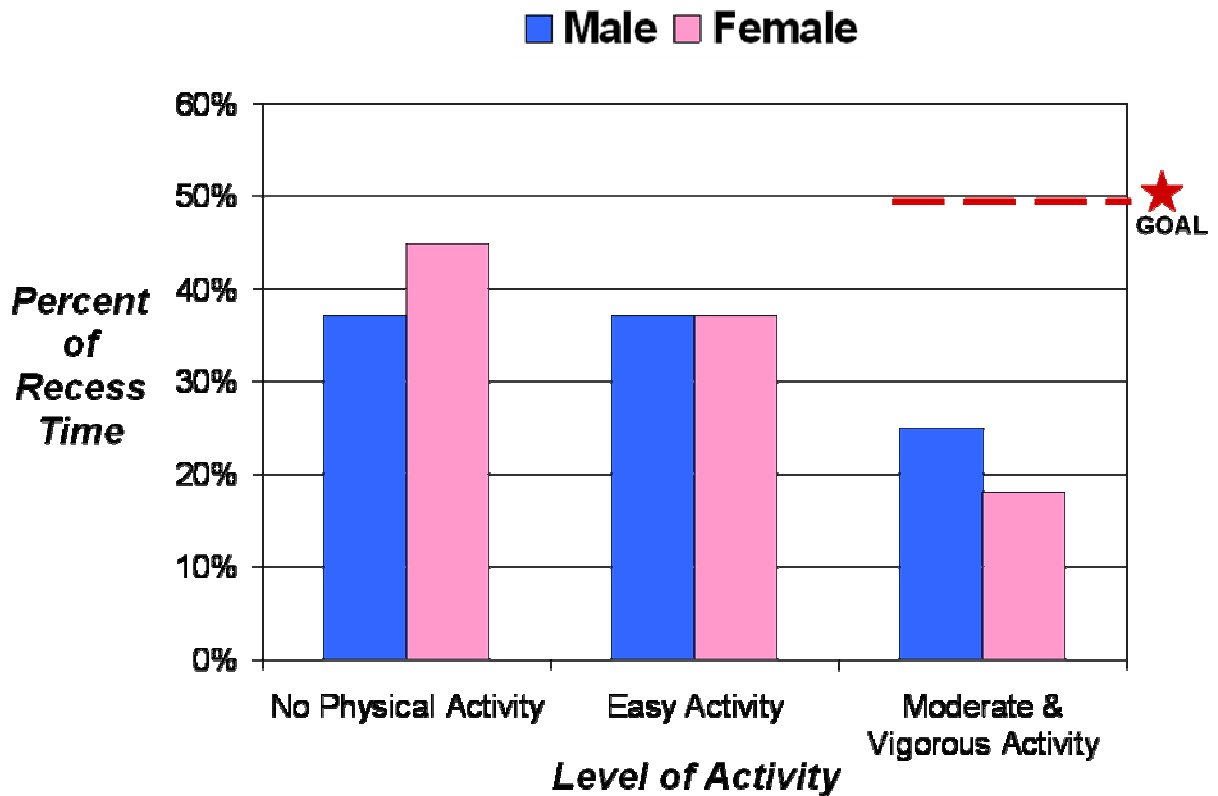
Percent of Recess Spent in Activity Reported by Weight



Take Home Message: The minimum recommendation is that 50% of activity time should be spent in moderate/vigorous activity, with the ultimate goal being 80% of activity time spent in moderate/vigorous activity. In this study, neither the normal weight nor overweight students are getting enough moderate/vigorous activity. Both groups could move more.

Figure 4

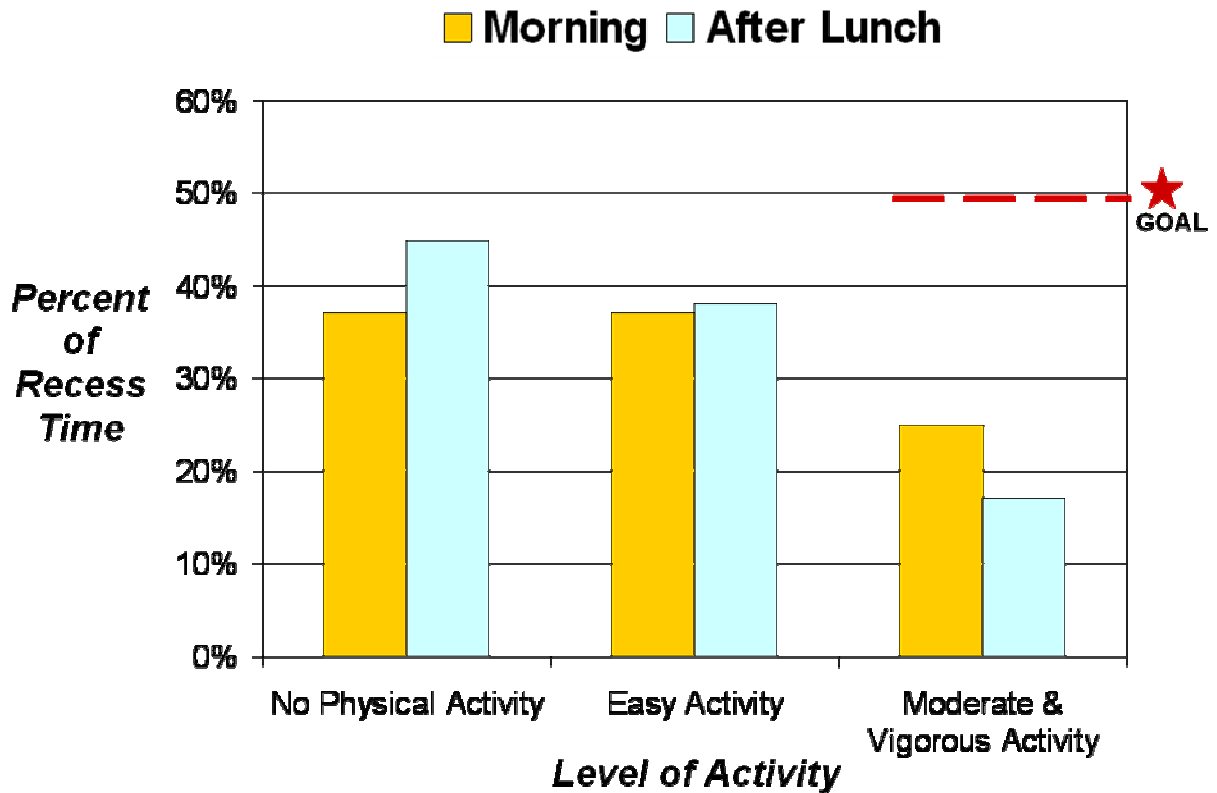
Percent of Recess Spent in Activity Reported by Gender



Take Home Message: At Lillian Larsen, females are not quite as active as boys at recess. More could be done to encourage both males and females to stay active. Adding highly active, individual sports such as ultimate Frisbee, hacky sacks, jump rope teams and race/walk clubs at recess would be a low-cost alternative.

Figure 5

Percent of Recess Spent in Activity Reported by Time of Day



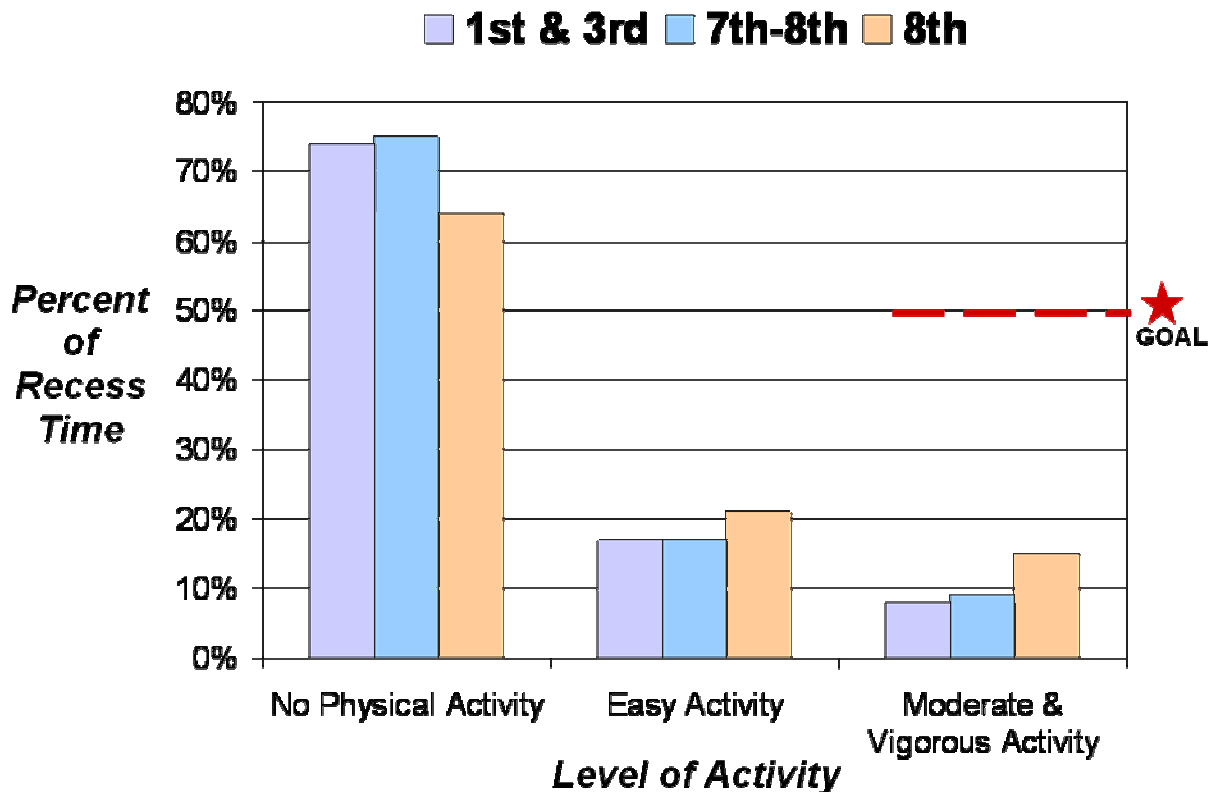
Take Home Message: Student's level of activity is much greater during the morning recess rather than during the recess after lunch. Intentionally increasing the level of activity during the afternoon recess would help students both mentally and physically.

Physical Activity During PE

On June 3, 2009 a team of four researchers observed three different physical education (PE) classes; a 7th-8th grade class, a 7th grade class and a 1st and 3rd grade class. The same protocol that was used for recess was used during this observation. Four students were observed in each of the 7th and 7th-8th grade PE periods, and two students in the 1st and 3rd grade PE period. The figure below shows the results of direct observation of physical activity during PE Class at Lillian Larsen School:

Figure 6

Percent of PE Class Spent in Activity Reported by Grade



Take Home Message: Direct observations showed that in large PE classes over 60% of the time is spent doing no activity at all. The most pronounced issue was the fact that the older students (7th and 8th grade) were not moving when their activity levels were measured. The older students are often looked up to as role models by the younger students. When the older students don't move during recess or PE, it sends a negative message to the younger students who watch and emulate them. It is strongly recommended that the older students (as well as any adults involved) start moving and participating more during PE and recess and become leaders for change. Improvements could also be gained by choosing PE activities that encourage continuous movement, such as soccer, racing/walking clubs, running etc. versus activities with little movement, such as baseball.

Observations and Recommendations

Mode of Transportation

Walking to school can be a great way to increase physical activity and prevent excessive weight gain in students. The majority of children walking to school were older students, and had siblings or friends walking with them. There were many children active on the playground/school grounds before the start of the school day and that was great to see.

According to McDonald (2008)²¹ less than 13% of students walk or bike to school nationwide. Therefore, with over 35% of students walking or biking to school, Lillian Larsen has a high number of students actively commuting to school by comparison. However, over 43% of students are driven to school. Barriers to walking could include the railway tracks, lack of a crossing guard, and the parents feeling of safety for their children. A ‘walking school bus’, where parents or other adults escort a group of children on a set route to school, is a practical and no-cost way to encourage children to walk to school while alleviating safety concerns for parents. (<http://www.walkingschoolbus.org>).

Physical Activity at Recess

As shown by Figure 2, as children get older, the amount of time engaged in ‘vigorous’ physical activity decreases. Also, in all grade levels, overweight students and female students tended to spend less time engaged in ‘vigorous’ activities. The majority of students engaged in some sort of ‘free play’ during recess. There seemed to be an adequate choice of activities. However, students spent a lot of time standing in line, waiting for their turn. This was especially prevalent in tetherball and four-square. Clearly, students enjoyed these activities. A simple way to eliminate lines during tetherball and four-square would be to provide more than one tetherball and encourage children to start more than one game of four-square. The development of a jump roping team for boys and girls has also become a very popular trend across the nation and the CA central coast since the movie “Jump In!” was released in 2007.

Physical Activity during PE

As shown by Figure 6, the overwhelming majority of time in a PE class is spent doing no activity at all. This does not include the time spent changing into gym clothes and moving to the field. The most pronounced issue was the fact that the older students (7th and 8th grade) were not moving when their activity levels were measured. The older students are often looked up to as role models by the younger students. When the older students don’t move during recess or PE, it sends a negative message to the younger students who watch and emulate them. It is strongly recommended that the older students (as well as any adults involved) start moving and participating more during PE and recess and become leaders for change. With a large group of students, it can be difficult to engage all students in an appropriate level of ‘easy’, ‘moderate’ or ‘vigorous’ activity. However, choosing activities that encourage continuous movement, such as soccer, running, racing/walking clubs, and hacky sack, etc., may be more beneficial than activities that encourage little movement, such as baseball. It

Plate Waste Study Results

With limited school funding, food service managers want to do their best to ensure students receive palatable food with the highest nutritional value. They want to ensure that children do not waste their lunch and then perhaps eat unhealthy food at a later point that day. Estimates of plate waste, based on Buzby and Guthrie's National School Lunch Program research, indicate about "12% of calories from food served to students in the National School Lunch Program (NSLP) goes uneaten."²² The same group reported that during a study, food waste decreased from 35% to 24% when recess was scheduled before lunch.²³ Besides the actual dollar cost of plate waste, the indirect cost is the adverse effect on children who do not receive the full benefit of school meals. The NSLP is designed to provide ¼ of the RDA at breakfast and 1/3 of the RDA at lunch for participating students. *When students do not consume their entire meal these goals are not met and students are less able to optimize their physical and cognitive development.*²⁴ <http://www.ers.usda.gov/publications/efan02009/efan02009.pdf>.

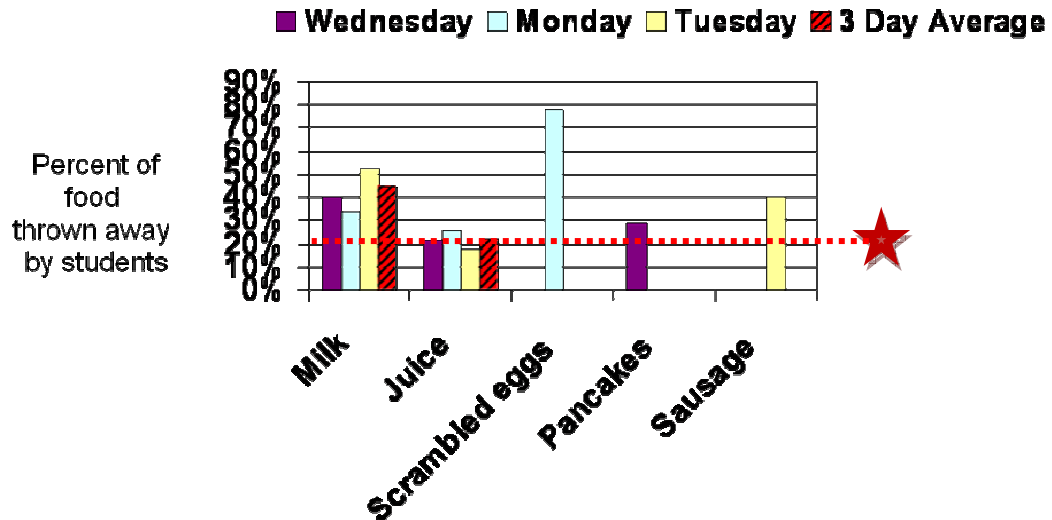
"In recent years, growing concern about hunger, resource conservation, and the environmental and economic costs associated with food waste have raised public awareness of food loss," reports the Economic Research Service (ERS) division of the United States Department of Agriculture (USDA).²⁵ According to ERS estimates, about 96 billion pounds of food, or 27 percent of the 356 billion pounds of the edible food available for human consumption in the United States, were lost to human use in 1995. (<http://www.ers.usda.gov/Publications/FoodReview/Jan1997/Jan97a.pdf>). This is disturbing news while the ERS also estimates that nearly 12% of the United States' homeless population with incomes below the poverty line reported that they 'sometimes' or 'often' did not get enough to eat.

Study and documentation of plate waste is a methodology used throughout the foodservice industry to measure actual consumption of food served. Plate waste in this study is defined as the portion of the food served to or selected by the student that was discarded after the meal. Plate waste data is useful to assess acceptance, nutrient intake, costs, behavior change and many other programmatic and operational questions related to foods and foodservice.

Commonly used methods include weighed plate waste (individual or aggregate), visual plate waste assessment and recall of intake by participants.²⁶ The weighed aggregate method was selected for this project considering the **HEAL SLO TCE** goal of creating baseline measures for school wellness improvement. Additional benefits are that differences in results, using the weighed aggregate method compared to other methods, are not statistically significant and that direct contact with students is not required. Moreover, all data collection occurs in the cafeteria environment and does not require any classroom time. There is also limited time and labor demand on the foodservice staff and the data collection does not require highly skilled research assistants.²⁷ Undergraduate nutrition students were recruited as research assistants and trained on the aggregate plate waste data collection method in a one-hour session. Additionally, detailed written instructions, logs, buckets and scales were provided to each team. The school provided hair nets, aprons, gloves and plastic liners for collection buckets.

Data collection at Lillian Larsen was conducted at breakfast and lunch on three days—taking into consideration student research assistant availability and the preference of the foodservice director. Every student meal served on study days was included in the plate waste study. Results are summarized in the following graphs:

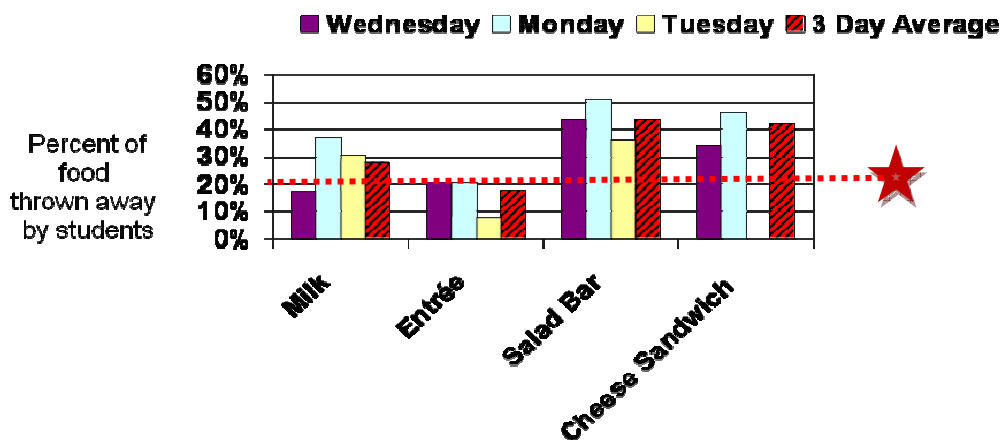
Breakfast Foods Served to Students and Discarded in the Trash by Students



Lillian Larson: May 27, June 1, June 2, 2009

The goal is to develop strategies that result in 75% or more of food served being consumed by students and decreasing plate waste to less than 25%, thereby improving health and saving the school money.

Lunch Foods Served to Students and Discarded in the Trash by Students



Lillian Larson: May 27, June 1, June 2, 2009

Plate waste at Lillian Larsen Elementary School

Plate waste data at Lillian Larsen Elementary School was measured using aggregate weights of food served compared to foods discarded. Foods not served were not included. Total plate waste for all foods varied from a low of 26.7% to a high of 35% with an average of 32.2%. There was considerable variation among food groups.

Baseline data indicates:

- 45% of milk was wasted at breakfast
- 22% of juice was wasted at breakfast
- 78% of eggs were wasted at breakfast (1 day sample)
- 29% of Pancakes with syrup were wasted (1 day sample)
- 40% of sausage was wasted (1 day sample)
- 28% of milk was wasted at lunch
- 18% of the entrée was wasted at lunch
- 42% of the cheese sandwich (entrée alternate) was wasted
- 44% of salad bar was wasted at lunch
- 32% of all food and beverages served was wasted

Qualitative observations

- Chocolate was the favorite flavor of milk
- Apple was the favorite flavor of juice
- Younger children seemed to waste more than older children
- Whole fruit (apples) were frequently discarded (at least 20 of the 125 placed on the salad bar); Based on experience, the apples appeal to and are selected by approximately 1/3 of the students, but for some reason which would require more observation to determine, they are not touched and become waste. The apples are approximately 3.8 ounces, 2 ½ inch diameter and suitable for elementary school age children.
- Some milk cartons are discarded unopened.
- Faculty and staff take chicken nuggets throughout the meal period which contribute to inaccurate chicken nugget waste data.
- Children who could not reach the salad bar were helped by the staff.

The school wellness policy encourages schools to allow students at least 20 minutes for lunch and to provide recess before lunch for all students through eighth grade.²⁸ It was reported that students are anxious to get outside and may be rushing through lunch - increasing plate waste and not consuming the nutritious school lunch items.²⁹

The menu at Lillian Larsen Elementary uses Food Based Menu planning with “offer versus serve” choices for the students. Some foods such as the 8 oz. cartons of milk are the same portion size for all age groups. However, grain portions such as rice or potatoes are planned and served according to the Food Based Menu Plan. For example, ½ cup rice is served for grades K-3 and ¾ cup rice is served for grades 4-8. Students self-select from the salad bar. Because the portion sizes are planned and served according to grade level, over-serving the younger children is not a factor that appears to contribute to plate waste.

As a side note, Nova Cassidy, the foodservice director at Lillian Larsen, reported that composting/worm program has previously motivated some of the younger students to take extra from the salad bar to “feed the worms”. She does not believe this is a significant contributor to plate waste currently.

Recommendations:

1. Pilot a recess-before-lunch schedule change, allowing students more time to eat. This is a strategy that has been documented as effective, yet implemented in only about 10% of elementary schools. Students will get more nutrients and the school may save money from decreased food waste.
2. The school seems to have a high percentage of Hispanic students, yet the menus include 4 or less Hispanic-influenced entrees (burrito, nachos, taco) during the month studied. Consider a partnership with a local Hispanic restaurant or interested parents to incorporate more traditionally prepared Hispanic foods. There may be current foodservice employees with a personal interest in healthy Hispanic foods who might have ideas.
3. Consider restaurant “celebrity” chef relationship to teach children basic cooking or food information and engage foodservice employees in new techniques. When children are involved in preparation of meals they are more likely to at least taste foods offered.
4. Listen and talk to children about foods and food choices, formally (in focus groups) and informally.
5. Invite adults (parents, volunteers or staff) to eat with children and model healthy eating behaviors.
6. Try a “local” salad bar/food day--perhaps tied in with recycling, composting and other sustainable activities. Invite a farmer to bring samples and talk about what he/she grows.
7. Try a “farmer’s market” on campus to expand availability of fresh fruits and vegetables to the community.
8. Consider other documented successes from the literature for reducing plate waste (see www.olemiss.edu/ or www.docstoc.com and also *Attachment C*). Have the parent/student network brainstorm “out of the box” ideas related to food offerings, community partnerships, nutrition promotion to students and parents and other creative program applications.

Overall Recommendations

Social learning through imitation, role modeling and reward were very important concepts “woven into” our recommendations.

1. Establish “Buy-In” from All School Staff

Key informants believe you are already in a great position to further garner support for this initiative. Staff and faculty serving as “healthy role models” will greatly benefit the school wellness policy and send a clear and concise message that there is staff “buy-in”. Providing incentives for the staff’s own wellness (and utilizing the resources of community partners and local businesses) will increase their enthusiasm and support. Utilize existing communication channels and networks, such as faculty meetings, daily announcements, bulletin board flyers, and informational discussions (invite reputable outside speakers) in the faculty lounge or lunchroom, to help inform others and create additional staff “buy-in” and a grass roots movement of sorts. Reminding staff of the following points may help in getting further “buy-in”:

1. A stronger SWP can better address the health-related interests, needs, and concerns of students, their families, and staff, and improve students' academic performance.
2. A SWP which specifically addresses physical activity and nutrition (providing specific activities) can help attain almost a quarter of the 300 national health objectives (CDC/Healthy People 2010).
3. Improved health status improves school attendance and learning. National and California state data from the Youth Risk Behavior Survey (CDC, 1995) and data from the San Luis Obispo County Health Department can demonstrate the prevalence of health risk behavior among youth.

2. Have 1 or 2 Lunch Groups Pilot “Recess Before Lunch”

The school wellness policy encourages schools to allow students at least 20 minutes for lunch and to provide recess before lunch for all students through eighth grade. It was reported that students are anxious to get outside and may be rushing through lunch - increasing plate waste and not consuming the nutritious school lunch items.

3. Family Involvement: Establish Parent Network

It was mentioned that to address the diverse needs of the students and their families, maximize resources, and ensure that health-related messages are consistent in schools, at home, within the peer group, and the community, *successful schools involve students' families and other members of the community*. Parents and other caregivers participate in school-based advisory groups and coalitions and often volunteer in the schools. Some schools offer parents opportunities to participate in health-related fairs or farmers' markets. Community-based agencies often provide additional health-related activities for students and their families (e.g., ropes courses, wilderness trips, butterfly viewing, sailing trips, theatrical performances, fun runs and walks etc.). The “School Wellness Committee” should promote, and support the activity linkages for these events to impact Lillian Larsen students and their families. Paradores training (offered by HEAL SLO) could increase participation of Spanish speaking families for all kinds of school programs, including wellness committees.

4. Taste Testing Fruits and Vegetables

Continued collaboration must exist with Wellness Committee, Healthy Hornets, superintendent/principal, teachers, and local media outlets to communicate with students and to encourage them to try different foods. In addition to monthly tasting events at which students will be offered samples of “fruits or vegetables of the month,” items should be served weekly throughout the month in school meals. The Healthy Hornet Youth Advocates could construct posters, table tents or hold a classroom competition highlighting the “fruit or vegetable of the month” complete with the benefits and nutritional information and interesting factoids about food. (For instance, the tomato is really a fruit!) Holding recipe contests would be another fun way to involve students with using fruits and vegetables. Use of the school garden could be incorporated into the nutrition education program. Correct portion sizes could also be emphasized at nutrition stations and be accompanied with photos of food in the correct portion sizes. (For example, did you know that a ping-pong ball sized portion is the correct adult portion size for a piece of cheese?)

4a. Have Students and Families Evaluate “Fruits and Vegetables of the Month”

Tasting events could then be evaluated by all students, school personnel, and parents at Lillian Larsen. Students could be asked to vote on whether they liked the items served, and would choose them if offered as part of school lunch. They could describe what they liked about those items. At the final tasting (TBD), students would receive a list of all foods tasted throughout the year and be asked to circle their 3 favorites.

(Optional) Surveys could be mailed--translated into Spanish to parents and guardians to assess their awareness of school food service events and changes.

Schools that offer physical activity programs that meet daily standards report positive effects on academic achievement, including concentration; improved mathematics, reading, and writing test scores; and reduced disruptive behavior...

5. Increase Physical Activity, Enhance Academic Outcomes

Schools that offer physical activity programs that meet daily standards report positive effects on academic achievement, including concentration; improved mathematics, reading, and writing test scores; and reduced disruptive behavior, even when time for physical education reduces the time for academics.³⁰ It is recommended that the school ensure their physical activity programs include moderate/vigorous activity for a minimum of 50% (and preferably 80%) of class time.³¹ The school has done a fine job of facilitating games and designating blacktop areas for certain games and should continue that practice. Additionally, it would be helpful to remain vigilant on upkeep of fields and facilities. If the total area cannot be maintained, demarcate a smaller playing field that is more manageable. Virtual walk-the-county programs have been successful in increasing physical activity as well.

5a. Promote Extracurricular Physical Activity

It is preferable to go beyond physical education classes and recess activity and promote cardiovascular fitness through lifelong physical activity. To do this, schools need to provide opportunities before, during, and after school hours for fitness activities, intramural programs, and interscholastic sports programs. Students could participate in other entertaining pursuits that promote physical activity such as “Jump Rope for Heart” or walk-a-thons. Check out a slice of the 2009 USA Jump Rope National Championship at www.youtube.com/watch?v=VKwo2hi-5xw to see how exciting some of these activities can be. Some schools develop partnerships with health clubs to expand the physical fitness facilities available to students and staff. Walking school buses are another great example for passive activity before and after school. Many of these activities require no money. With thought, economics doesn't have to play a significant role in preventing participation in extracurricular physical activities.

6. Continue to Promote School Garden

Support Nova Cassidy and Christina Wilkinson's ongoing school garden to supplement salad bar at lunchtime. Take advantage of other areas around the school site where there are raised beds, to involve more students of all ages. Older, more experienced student gardeners could serve as mentors for the younger students. Expand learning opportunities in the school garden during the school day to include science, math, creative writing and art.

7. Establish “User-Friendly” Identification System for Healthy Snacks and Correct Portions

Once an attractive flyer is developed, print out and place tier 1 and tier 2 snack nutrition information, with correct portion sizes, in the parent newsletter and in Food Bank back packs. Connect with Healthy Hornets to be certain they are emphasizing both *healthy snacks* and *correct portion sizes* when they

promote taste tests of “fruit or vegetable of the month” in the cafeteria. Ensure that equipment (salad bar) and tools (tongs and dressing dispensers) are easy to use—perhaps smaller than standard size. The introduction of bite-size pieces (baby carrots) and fresh-cut fruits (pineapple and apple slices) and vegetables (broccoli florets) has been demonstrated to increase consumption by children and adults alike. The added purchase costs may be offset by a reduction in plate waste. Seasonal cut fruit can be morphed into a variety of salad recipes. The Healthy Hornets can also apply the marketing strategies employed by all restaurants by creating fun, catchy names and descriptions— ‘broccoli’ becomes ‘dinosaur trees’; ‘salad’ can become ‘crunchy, garden-fresh apple salad; pineapple added to pizza creates a ‘Hawaiian pizza.’” Positive encouragement reminds students to “choose two-three colors” from the salad bar and to try the featured “Harvest of the Month” item. And remember the value of guilt-free perseverance when encouraging tasting- it may take 12 to 15 taste session before a new food taste is acquired.

8. Limit Access to Competitive Foods. The phrase “competitive foods” typically refers to foods and beverages which are offered at school, outside of the school meal program. The usual culprits—chips, candy and cookies—are high in calories, fat, saturated fat and sugar. *Research shows that access to competitive foods in school reduces the quality of student’s diets*, yet it’s easy to see that many students will pass up a bran muffin if there are donuts around for sale or for free. Pricing healthiest foods cheaper than less healthy foods, increasing variety of healthy foods to ensure more choices for students and eliminating all advertising of unhealthy foods are just a few ways to deal with this issue.

Top Five Lists

For ease of application, we’ve also synthesized all recommendations to create lists of the top five things that can be done to improve student wellness at each level of influence; beginning with the individual level and working up to the school and public level. These are available on *Attachment D*.

Summary

At Lillian Larsen, there is excitement and enthusiasm to promote and follow a strengthened SWP. Lillian Larsen is in a great position to further those initiatives. In the event there are individuals who are not familiar with the potential gains of a strengthened SWP, the attached list (*Attachment E*) of policy challenges and concerns may offer you a research “sound-byte” for those unconvinced.

With this assessment and the tools provided, we’re certain Lillian Larsen Elementary School can make great strides in its wellness program and achieve overall success.

Attachment A - CDC-Recommended School Wellness Policies

Federal and state of California agencies (e.g., The Center for Disease Control and Prevention CDC website and The California Center for Public Health Advocacy, 2009/2004) established a recommendation list containing very broad school wellness policies designed to slow down and reverse the childhood overweight epidemic. Recommendations included:

1. Implement healthy food and beverage standards for products sold in schools and other public facilities.
2. Ensure quality physical education for all children K-12.
3. Eliminate advertising of unhealthy foods and beverages on public property.
4. Make school recreation facilities available for before and after-hours use as well as during vacation periods.
5. Ensure public access to all public facilities that provide physical activity programs.
6. Provide financial incentives that bring grocery stores and recreation facilities to low-income communities.
7. Provide safe roadway access for walking and biking to school.
8. Require health insurance to cover nutrition counseling and physical activity.
9. Eat at least five servings of fruits and vegetables each day.
10. Establish a school wellness committee to implement and oversee the wellness policy.

Attachment B - Physical Activity Assessment Tables

Figure 2. Percent of Recess Spent in Social Engagement and in Activity at Lillian Larsen School, reported by Grade Level (n=24)

Grade Level	Socially Engaged	Alone	No Physical Activity	'Easy' Activity	'Moderate' Activity	'Vigorous' Activity
Grades K-3	85.2%	16.4%	28.2%	45.6%	17.6%	8.3%
Grades 4-6	95.2%	4.8%	44.6%	30.3%	18.0%	5.2%
Grades 7-8	83.9%	16.1%	74.5%	16.9%	4.6%	4.0%
TOTAL	89.7%	11.2%	41.2%	37.2%	14.8%	6.1%

Figure 3. Percent of Recess Spent in Social Engagement and in Activity at Lillian Larsen School for Normal Weight versus Overweight Students in K-8th Grades (n=24)

Weight Status	Socially Engaged	Alone	No Physical Activity	'Easy' Activity	'Moderate' Activity	'Vigorous' Activity
Normal Weight	86.9%	13.1%	42.2%	34.9%	11.8%	9.8%
Overweight	93.1%	8.9%	39.9%	40.0%	18.4%	1.8%

Figure 4. Percent of Recess Spent in Social Engagement and in Activity at Lillian Larsen School for K-8th Grade Students, reported by gender (n=24)

Weight Status	Socially Engaged	Alone	No Physical Activity	'Easy' Activity	'Moderate' Activity	'Vigorous' Activity
Male	96.3%	5.6%	37.4%	37.2%	13.8%	10.7%
Female	83.2%	16.8%	45.0%	37.3%	15.9%	1.6%

Figure 5. Percent of Recess Spent in Social Engagement and in Activity at Lillian Larsen School for K-8th Grade Students, *reported by time of day*

Time of Day for Recess	Socially Engaged	Alone	No Physical Activity	'Easy' Activity	'Moderate' Activity	'Vigorous' Activity
Morning	95.5%	4.5%	37.2%	36.7%	20.7%	4.2%
After Lunch	84.0%	17.9%	45.2%	37.8%	9.0%	8.1%

Figure 6. Percent of Physical Education (PE) Class Time Spent in Social Engagement and in Activity at Lillian Larsen during PE Class, *reported by grade (n=10)*

PE Class	Socially Engaged	Alone	No Physical Activity	'Easy' Activity	'Moderate' Activity	'Vigorous' Activity
1 st and 3 rd Grade	100.0%	0.0%	63.9%	21.2%	5.8%	9.1%
7 th Grade	72.1%	27.9%	74.3%	17.3%	5.5%	2.9%
7 th -8 th Grade	95.7%	4.3%	74.8%	16.6%	3.6%	5.0%
TOTAL	87.1%	12.9%	72.4%	17.8%	4.8%	5.0%

Attachment C - Plate Waste Resources and Literature

- Adams, M. A., Pelletier, R. L., Zive, M. M., & Sallis, J. F. (2005). Salad bars and fruit and vegetable consumption in elementary schools: A plate waste study. *Journal of the American Dietetic Association, 105*(11), 1789-1792.
- Buzby, J., & Guthrie, J. F. (2002). *Plate waste in school nutrition programs: Final report to congress*
- Clark, M. A., & Fox, M. K. (2009). Nutritional quality of the diets of US public school children and the role of the school meal programs. *Journal of the American Dietetic Association, 109*(2S), 44-56.
- Crepinsek, M. K., Gordon, A. R., McKinney, P. M., Condon, E. M., & Wilson, A. (2009). Meals offered and served in US public schools: Do they meet nutrient standards? *Journal of the American Dietetic Association, 109*(2S), 31-43.
- Cullen, K. W., Hartstein, J., Reynolds, K. D., Vu, M., Resnicow, K., Greene, N., et al. (2007). Improving the school food environment: Results from a pilot study in middle schools. *Journal of the American Dietetic Association, 107*(3), 484-489.
- Fox, M. K., Gordon, A., Nogales, R., & Wilson, A. (2009). Availability and consumption of competitive foods in US public schools. *Journal of the American Dietetic Association, 109*(2S), 57-66.
- Getlinger, M. J., Laughlin, C.V.T., Bell, E., Akre, C., & Arjmandi, B. H. (1996). Food waste is reduced when elementary-school children have recess before lunch. *Journal of the American Dietetic Association, 96*(9), 906-908.
- Gleason, P. M., & Dodd, A. H. (2009). School breakfast program but not school lunch program participation is associated with lower body mass index. *Journal of the American Dietetic Association, 109*(2 Suppl), S118-28.
- Ishdorj, A., Crepinsek, M. K., & Jensen, H. H. (2009). Dietary effects of menu choices in the national school lunch program.
- Johnson, R.K., Nicklas, T.A., Dietary Guidance for Healthy Children Aged 2 to 11 years – Position of the American Dietetic Association, *J Am Diet Assoc*, 1999:
- Marlette, M. A., Templeton, S. B., & Panemangalore, M. (2005). Food type, food preparation, and competitive food purchases impact school lunch plate waste by sixth-grade students. *Journal of the American Dietetic Association, 105*(11), 1779-1782.

Attachment D - Top Five “Level of Influence” Recommendations

Top five things students can do to improve student wellness:

1. Learn about healthy eating and active living. Check your portion sizes, eat your colors (vegetables) and read the nutrition labels to find low-fat, low-sugar, and high-fiber healthy foods.
2. Pack healthy lunches and/or make healthy choices at the lunch line.
3. You’ve got to move it! Accumulate at least 1 hour of physical activity per day and limit screen time (computer, games and TV) to no greater than a total of 2 hours/day.
4. Tell your friends and family what you’ve learned and encourage them to be healthy.
5. Start or join a student committee that works on making your school healthy and fun.

Top five things families can do to improve student/school wellness:

1. Role model healthy eating and active living for your family. Turn off the TV and join your children for an outdoor activity.
2. Cook most of your meals and teach your kids how to cook meals and how to select correct portion sizes.
3. Use non-food rewards for your children.
4. Initiate the parent bus and begin influencing city officials to implement safe school walkways.
5. Start or join a parent committee to help the school implement their wellness policy.

Top five things teachers can do to improve student/school wellness:

1. Role model healthy eating and active living for your students.
2. Give non-food rewards; acknowledge healthy meals from home or other with a “Caught you being healthy” coupon to be included in weekly raffle drawings or Farmer’s Market bucks.
3. Factor physical activity into your daily work plan—keep kids moving and engaged.
4. Integrate nutrition and exercise modules into your curriculum whenever appropriate (science, art, use of school garden, etc.).
5. Put up posters and kids’ projects that encourage activity and nutrition.

Top five things the school can do to improve student/school wellness:

1. Role model and get “buy-in” from all school staff regarding the school wellness program. Enthusiastically describe its benefits to the staff without giving them too much paperwork. (Make it a grass roots effort, if possible.) Address any of your staffs’ concerns and recognize them for their efforts. Report your activities at the district level.
2. Kick start the School Wellness Committee and other groups who will implement many parts of your policy. Give them your expectations, ideas, and a lot of free rein. Follow their progress and reward them.
3. Establish recess before lunch or at least pilot one or two lunch groups with recess before lunch.
4. Ensure the PE program isn’t allowed to stagnate, but keeps everyone moving—changing activities or sports as necessary.

5. Promote healthy eating (taste testing fruits and vegetables or have “fruits or vegetables of the month”) and don’t allow unhealthy marketing and branding at school. Remove the Pepsi graphic from the vending machine and replace it with a water graphic produced by the same manufacturer. Support the implementation of nutrient standards, increase the variety of healthy foods to ensure more choices for the students, and price the healthiest foods cheaper than the less healthy food.

Make the healthy choice the easy choice by not offering junk/unhealthy foods—foods which are in direct competition with the healthful choices.

Top five things the community/public can do to improve student/school wellness:

1. Collaborate with the superintendent/principal, teachers, local media outlets and community organizations to communicate the urgent need for wellness programs and ask them to reinforce the messages in their programs.
2. Influence the appropriate agencies to create a safe, walk-able route to school.
3. Provide fresh, local produce at local markets. Expand after school cooking programs for children and families.
4. Develop the capacity of the school kitchen to prepare more foods from “scratch”. (Refer to “Starts Aligning on School Lunches” New York Times online article at www.nytimes.com/2009/08/19/dining/19school.html)
5. Continue to provide extracurricular physical activities and programs for students. Raise money to support school wellness programs including garden-based learning, physical fitness and incentive and reward programs.

Attachment E - National School Wellness Policy Concerns As Voiced by School Administrators with Best Practice Response

Concern: “We have no money, no training, and few facilities.”

Response: “Funding and other resources are limited at Oceano and other schools; let’s look at what is already in place and what is new and different. By looking at what you already have and coordinating efforts (Healthy School Team) you actually might save money and use that new money to implement or promote additional programs.”

Concern: “There’s not enough time in the school day. I can’t do one more thing.”

Response: “In most cases, you will not have to do more than you do already. A truly integrated SWP takes less time because it reduces duplication of effort. That is why parents, staff, students and administrators need to be communicating the same message; healthy students are more academically prepared to succeed as youth and adults.”

Concern: “We’ve always done it this way.”

Response: “Just because you have done it a certain way does not mean it’s the best way. As the needs and concerns of youth and their families change, schools must change to meet those needs. Change is sometimes difficult, but by not changing you are not supporting your students.”

Concern: “When I was in school we didn’t have a SWP, and I still made it.”

Response: “The challenges that youth face today are very different from those in the past. Working in isolation, today’s teachers cannot meet the complex needs of students. In contrast to the ‘old morbidities’ (communicable diseases, for example), young people face ‘new morbidities’ (eating disorders, binge eating, depression, self image problems, sedentary lifestyle etc.) that are highly correlated to school failure and reduced quality of life as adults. The obesity epidemic is predicted to overtake tobacco as the number one preventable killer in the U.S.”

Concern: “We are in the business of education, not in the business of health.”

Response: “That is true. But students who are hungry, sick, troubled, depressed, malnourished, and inactive cannot function well in the classroom, no matter how good the school (Carnegie Council on Adolescent Development, 1989). Education and health are closely intertwined. By addressing nutrition and physical activity in students and their families now, we should see increases in academic achievement and in the numbers of students who are capable of addressing future challenges.”

Concern: “If it ain’t broke, don’t fix it!”

Response: “It is ‘broke.’ Students are heavier, fatter, and sicker. In short, students are not performing to their maximum potential. Not all students succeed; however, schools must provide additional opportunities, supports, and services that promote positive development of youth and their families to increase students’ academic success.”

Concern: “What is in it for me?!”

Response: “Your job will be easier. When students’ health-related needs are met, more students will arrive at school ready to learn. Their successes will make them more willing to participate and less likely to become disruptive. That – in the long run – will increase your success with more students.”

Source: “*Health is Academic: A guide to coordinated school health programs*” Marx, Wooley and Northrop, Teachers College Press, 1998. Concerns and Responses edited from Chapter 2: Implementing School Health Programs in Local Schools by Joyce V. Fetro, pp 38-39.

References

- ¹ Hill, J. O., & Trowbridge, F. L., (1998). Childhood Obesity: Future directions and research priorities, *Pediatrics*, 101(3), 570-574.
- ² Ogden, C. L., Flegal, K. M., Carroll, M. D., & Johnson, C. L. (2002). Prevalence and trends in overweight among US children and adolescents, 1999-2000. *JAMA*, 288(14), 1728-1732.
- ³ Hedley, A. A., Ogden, C. L., Johnson, C. L., Carroll, M. D., Curtin, L. R., & Flegal, K. M. (2004). *JAMA*, 291(23), 2847-2850.
- ⁴ CDC. Health United States. (2008) Table 75. Accessed September 11, 2009. Available at <http://www.cdc.gov/nchs/data/hus/hus08.pdf>.
- ⁵ Children Now. 2007 *California County Data Book*, San Luis Obispo County. Available at www.childrenow.org. (Accessed Tuesday, August 18, 2009).
- ⁶ California Department of Education. Physical Fitness Testing (2008). December 1, 2008. Available at <http://www.cde.ca.gov/ta/tg/pf/>. (Accessed Tuesday, August 18, 2009).
- ⁷ Childhood Obesity Prevention Task Force (2007). Community Action Plan to Increase Healthful Eating and Regular Physical Activity among Children in SLO County. Available at <http://www.slocounty.ca.gov/AssetFactory.aspx?did=13147>. (Accessed Tuesday, August 18, 2009).
- ⁸ West Virginia Health Statistic Center (HSC). *Obesity: Facts, Figures and Guidelines*. Available at <http://www.wvdhhr.org/bph/oehp/obesity/section1.htm>. (Accessed Thursday, September 9, 2009).
- ⁹ Weiss, Ram M.D. (2004). *Obesity and the Metabolic Syndrome in Children and Adolescents*. New England Journal of Medicine. Vol. 350. No. 23. Available at <http://content.nejm.org/cgi/content/abstract/350/23/2362>. (Accessed September 9, 2009).
- ¹⁰ Mayo Clinic Staff. (2007). Mayo Clinic. *Metabolic Syndrome Definition*. Available at <http://www.mayoclinic.com/health/metabolic%20syndrome/D500522>. (Accessed September 9, 2009).
- ¹¹ Whitaker, Rober, M.D. (1997.) *Predicting Obesity in Young Adulthood from Childhood and Parental Obesity*. New England Journal of Medicine. Vol. 337. No. 13. Available at <http://www.content.nejm.org/cgi/content/abstract/337/13/8699020>. (Accessed September 9, 2009.)
- ¹² Anderson, Sarah, Ph.D. and Whitaker, Robert, M.D., M.P.H. (April 2009). *Prevalence of Obesity Among U.S. Preschool Children in Different Racial and Ethnic Groups*. Archives of Pediatrics and Adolescent Medicine. 2009. 163 (4): 344-348. Available at <http://archpedi.ama-assn.org/cgi/content/abstract/163/4/344>. (Accessed September 9, 2009).
- ¹³ Mayo Clinic Staff. (2007). Mayo Clinic. *Metabolic Syndrome Definition*. Available at <http://www.mayoclinic.com/health/metabolic%20syndrome/D500522>. (Accessed September 9, 2009).

-
- ¹⁴ Colditz, G. A. (1999). Economic costs of obesity and inactivity. *Medicine in Science Sports and Exercise*, 31(11 Supplement), S663-7.
- ¹⁵ Story, M. (1999). School-based approaches for preventing and treating obesity. *International Journal of Obesity Related Metabolic Disorders*, 23(Supplement 2), S43-S51.
- ¹⁶ Moore, Jane, Ph.D., RD Manager of Oregon Department of Human Services – Health Services. Available at <http://www.dhs.state.or.us/publichealth/hpcdp/about.cfm#why>. (Accessed September 9, 2009).
- ¹⁷ Pedestrian and Bicycle Information Center for the Partnership for a Walkable America, in cooperation with the U.S. Department of Transportation. .Walking School Bus. Available at <http://www.walkingschoolbus.org>. (Accessed September 2009).
- ¹⁸ Sallis, J. F. & Owen, N. (2002). In Glanz, Rimer, & Lewis, *Health Behavior and Health Education: Theory, Research and Practice (3rd Edition)*. Jossey-Bass Publishers, pgs. 462-484.
- ¹⁹ Smedley, B. D. & Syme, S. L. (2000). *Promoting Health: Intervention Strategies from Social and Behavioral Research*. Washington D.C.: National Academy Press.
- ²⁰ World Health Organization, (1998). *Obesity: Preventing and Managing a Global Epidemic*. Geneva: World Health Organization.
- ²¹ McDonald, N. (2008) *Children’s mode choice for the school trip: the role of distance and school location in walking to school*. Transportation. 35. 23-35. Available at <http://www.planning.unc.edu/files/nmcdonald-cv-jan09.pdf>.
- ²² Buzby, J.C. Guthrie, J.F., (March 2002). *Plate Waste in School Nutrition Programs: Final Report to Congress*. Available at <http://www.ers.usda.gov/publications/efan02009/efan02009>. (Accessed May 4, 2009).
- ²³ Getlinger, M. J., Laughlin, C.V.T., Bell, E., Akre, C., & Arjmandi, B. H. (1996). Food waste is reduced when elementary-school children have recess before lunch. *Journal of the American Dietetic Association*, 96(9), 906-908.
- ²⁴ Ibid.
- ²⁵ Kantor, Linda Scott, and Lipton, Kathy. *Estimating and addressing America’s Food Losses*. Food Review. USDA Economic Research Services. Available at: <http://www.ers.usda.gov/Publications/FoodReview/Jan1997/Jan97a.pdf>. (Accessed September 14, 2009).
- ²⁶ Carr, D., Levins, J., Lindeman, A., Plate Waste Studies, National Foodservice Management Institute, Available at <http://www.olemiss.edu/depts/nfsmi/Information/recipes4.pdf>. Accessed May 11, 2009.

²⁷ Jacko, C.C., Dellava, J., Ensle, K., Hoffman, D.J., *Use of the Plate-Waste Method to Measure Food Intake in Children*. Journal of Extension. December 2007, 45: 6, Available at <http://www.joe.org/joe/2007/december/rb7.php>. Accessed May 4, 2009.

²⁸ Getlinger M, Laughlin CVT, Bell E, Akre C, Arjmandi B. *Food waste is reduced when elementary-school children have recess before lunch*. Journal American Diet Association. 1996; 96: 906-908.

²⁹ Wechsler H, Devereaux AB, Davis M, Collins J. *Using the school environment to promote physical activity and healthy eating*. Preventive Medicine 2000; 31: S121-S137

³⁰ Symons CW, Cinelli B, James TC, Groff P. *Bridging student health risks and academic achievement through comprehensive school health programs*. Journal of School Health. 1997; 67: 220-227.

³¹ U.S. Department of Health and Human Services. *Healthy people 2010: Understanding and improving health*. Washington, DC: U.S. Department of Health and Human Services, Government Printing Office, 2000.