Let's Move! from DC to PC: Policy and Programming in Providence Charter Schools Around Student's Awareness Towards Living Healthy

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Abstract

The issue of childhood obesity gained heightened attention in 2010 with the launch of First Lady Michelle Obama’s Let’s Move! initiative to end childhood obesity within a generation. The following paper examines the issue of childhood obesity in America, as well as factors, such as the costs associated with it. The study for this paper specifically questioned whether health education affects student’s awareness towards living a healthy lifestyle. This case study worked with two Providence, RI charter schools and targeted students from K – 5th grade. A pre-survey was facilitated by teachers on a majority of students in both schools to test awareness on nutrition and physical activity. This was executed through a series of questions aimed toward students’ attitudes and behavioral choices on the topics of nutrition and physical activity. After the pre-survey was completed, a two-month health education intervention was implemented in both schools targeting the same students. Once the intervention piece was completed, a post-survey, which was identical to the pre-survey, was facilitated and aimed at the same students from the pre-survey. This study was designed to see if students’ awareness towards health and wellness changed as an effect of the intervention. The following study will show that the intervention piece was successful and students were more apt to identify positive health attitudes and choices after the intervention. The study will also show that girls showed larger positive changes from pre- to post-survey than boys at both schools.
Let’s Move! from DC to PC: Policy and Programming in Providence Charter Schools Around Student’s Awareness Towards Heath & Wellness

Obesity in America is not a new trend. In fact, during the nineteenth century many obese individuals were considered healthy. Wealthy and reputable individuals, such as “U.S. presidents Zachary Taylor, Millard Fillmore, Ulysses S. Grant, and Chester A. Arthur were all obese and were publicly regarded as prosperous, trustworthy, and upstanding” (Jimerson, 2009, 12). Their “fat cheeks, stomachs, and thighs made people (them) appear ‘healthy’ compared with the many who were emaciated by tuberculosis and other debilitating diseases prevalent at the time” (Jimerson, 2009, 12). However, today people view obesity as unattractive and unhealthy as a result of the linkage between obesity and serious illnesses. One form of obesity that has become a prominent issue in the United States is childhood obesity. According to the most recent National Health and Nutrition Examination Survey (NHANES), obesity affects “16 percent of children 6 through 19 years and 10 percent of children 2 to 5 years” (FRAC, 2005, 4). In addition, being overweight affects “31 percent of children 6 through 19 years, and 22 percent of children 2 to 5 years” (Jimerson, 2009, 12). Percentages for obese and overweight children were not this high twenty years ago. However, factors such as food insecurity, the growth in dining at fast food restaurants, a decline of meals prepared at home, the lack of recreational spaces, the increase in time and labor which demand for convenience food (Yi Chou & Grossman, 10), lack of health and wellness education, among many other factors, have all led to the dramatic increase of childhood obesity rates in America.

Childhood obesity is a condition in which a child has excessive body fat (Jimerson, 2009, 10). Regardless if you are a child or adult, Body Mass Index (BMI)
calculations determine whether a person is obese, overweight, normal weight, or underweight (FRAC, 2005, 5). A person’s BMI is “calculated by dividing the weight in pounds by the height in inches squared and then multiplying the answer by 703. In mathematical form, it looks like this: BMI = (weight in pounds/height in inches x height in inches) (703) (FRAC, 2005, 5). If the answer received from the calculation is between 25 and 29.9, the person is considered overweight. If the total is above 30, the person is considered obese (FRAC, 2005, 5). The only slight difference in a child’s BMI is that gender is also taken into consideration. Terminology developed by the National Center of Health Statistics places children in percentiles on an age/gender chart. However, regardless of whether the person is a child or an adult, BMI is still calculated with the same mathematical equation.

If his or her (a child’s) BMI falls between the 85th and 95th percentiles on the appropriate age/gender chart, his or her weight status is “at risk of overweight” (equivalent in meaning to the word “overweight” in adults). If his or her BMI is at or above the 95th percentiles for his or her age and gender, then the classification will be “overweight,” equivalent to the word “obese” being applied to an adult (FRAC, 2005, 5).

Being overweight or obese as a child can cause increased health risks that are carried into adulthood. According to the American Heart Association, “approximately 1 million adolescents aged twelve to nineteen have metabolic syndrome, which is a term used to group together several medical conditions that often occur concurrently” (Jimerson, 2009, 24). Of these 1 million adolescents three quarters “are overweight, and around one in four is at risk of being overweight” (Jimerson, 2009, 24). Health conditions and diseases that make up metabolic syndrome include “obesity, high blood pressure, hyperinsulinemia (high insulin levels), and dyslipidemia (high levels of triglycerides and bad cholesterol
and low levels of good cholesterol)” (Jimerson, 2009, 24-25). In addition, Jimerson (2009) claims the following are risks that are associated with childhood obesity (35):

- Cardiovascular disease
- Degenerative joint disease
- Depression
- Early puberty and early start of menstruation in girls
- Eating disorders
- Exposure to social prejudice and discrimination
- Fat accumulation in the liver (fatty liver/liver disease)
- Gallbladder disease
- High cholesterol
- Hypertension
- Increased anxiety and stress
- Joint pain
- Low self-esteem
- Sleep apnea
- Type 2 diabetes mellitus

Specifically, the above lists cause problems with the heart and blood vessels, respiratory system, blood lipids, high blood pressure, and has psychosocial consequences (Smith, 1999, 5-14). These health risks and consequences cause obesity to be “the fastest growing cause of death in America” (Variyam, 2005). The health consequences above suggest high mortality risks as a result of disease in adulthood that may have developed from childhood obesity (Hills, King & Byrne, 2007, 21). Children are more likely to be unhealthy adults if they experience being obese or overweight as a child. Patrick Vivier and Christine Tompkins of Brown University claimed, “it is clear that being obese, particularly in adolescence, puts a child at risk for becoming an obese adult. Further, it has been established that childhood weight status is associated with adult morbidity and
Economic Costs of Obesity in the United States

According to the United States Department of Health and Human Services (HHS), “overweight and obesity and their associated health problems have a significant economic impact on the U.S. health care system” (2001). The Centers for Disease Control and Prevention (CDC) study of the national costs attributed to overweight and obesity states that 9.1 percent of the total U.S. medical expenditures in 1998 accounted for medical costs related to overweight and obesity (2011). That statistic equated to roughly $78.5 billion (1998 dollars) (CDC, 2011). The CDC (2011) states that approximately half of the 1998 costs listed above were paid by Medicaid and Medicare. The distinction between Medicaid and Medicare is important to acknowledge; Medicaid is a social welfare program and Medicare is a social insurance program. A CDC 1998-2000 study showed the estimated percentages and total Medicare and Medicaid state expenses that could be attributed to obesity. To provide a more local example, a recent CDC study estimated that Medicare paid for 6.5 percent ($83 million) of Rhode Island residents’ expenses attributed to obesity and 7.7 percent ($89 million) of Medicaid expenses related to obesity in RI. The CDC (2011) and the National Conference of State Legislatures (NCSL) report that Rhode Island was estimated to spend a total of $305 million on annual medical costs related to obesity (2010). In addition, the NCSL (2010) stated that in 2009 the state obesity rate within Rhode Island was 24.6 percent. The above
numbers from the CDC and NCSL reports were borrowed from a 2004 *Health Affairs* report conducted by economists Eric Finkelstein, Ian Fiebelkorn, and Guijing Wang. These numbers have increased over the years. Ross Hammond and Ruth Levine, of the Economic Studies Program of the Brookings Institution (2010), stated, “estimated costs of obesity are as high as $147 billion a year for 2008, or almost 10% of all medical spending. This is a substantial increase from their (Feinkelstein et al) 1998 estimate of $78.5 billion a year” (287).

As one can identify from the above statistics, obesity and the chronic diseases associated with it cause individuals to pay significantly more for medical care. According to the Economic Research Program’s Food Assistance and Nutrition Program (efan), “the lifetime medical costs related to diabetes, heart disease, high cholesterol, hypertension, and stroke among the obese are $10,000 higher than among the non-obese” (Bhattacharya & Sood, 2004). The HHS, along with the National Institutes of Health (NIH) and the National Institute of Diabetes and Digestive And Kidney Diseases (NIDDK), updated a report in 2010, *Overweight and Obesity Statistics*, which used the National Health and Nutrition Examination Survey (NHANES) 2003-2006 and 2007-2008. This report broke down the individual costs for each obese beneficiary on Medicare, Medicaid, and through private insurers. The report estimated the cost of obesity as $1,429 (42 percent) more in health care costs for people who are considered obese, than normal-weight individuals (HHS, 2010). In regards to insurance status, for each obese beneficiary Medicare is estimated to pay $1,723 more than it pays for normal-weight beneficiaries, Medicaid pays an estimated $1,021 more, and private insurers pay an estimated $1,140 more for obese beneficiaries than for normal-weight beneficiaries (HHS, 2010). More specifically,
Medicare pays $95 more for inpatient services, $693 more for non-inpatient services, and $608 more for prescription drugs for each obese patient in comparison to normal-weight patients (HHS, 2010). Medicaid pays $213 more for inpatient services, $175 more for non-inpatient services, and $230 more for prescription drugs for each obese patient in comparison to normal-weight patients (HHS, 2010).

Hammond and Levine (2010) stated, “Medicare spending would be an estimated 8.5% lower and Medicaid spending 11.8% lower in the absence of obesity” (287). As a result of the above numbers, medical spending in America was “41.5 % higher as a result of obesity” in 2006 (Hammond & Levine, 2010, 287). Finally, private insurers pay $443 more for inpatient services, $398 more for non-inpatient services, and $284 more for prescription drugs for each obese patient in comparison to normal-weight patients (HHS, 2010). These numbers can be related to direct and indirect medical costs of obesity.

According to the CDC (2011), “direct medical costs may include preventative, diagnostic, and treatment services related to obesity. Indirect costs relate to morbidity and mortality costs.” More specifically, “morbidity costs are defined as the value of income lost from decreased productivity, restricted activity, absenteeism, and bed days. Mortality costs are the value of future income lost by premature death” (CDC, 2011).

In addition to the above, there have been many scholarly articles published and statements and articles printed from various U.S. Departments on the economics of obesity in America. Most of this literature examines the health consequences of being overweight or obese and the national cost that is attributed to these health issues. In 2003, the Surgeon General of the United States, Richard H. Carmona, presented testimony to the U.S. House of Representatives’ Subcommittee on Education Reform, titled “The
Obesity Crisis in America”. Carmona and the HHS estimated that in the year 2000, the total annual cost of obesity in the U.S. was $117 billion (2003). During his testimony, Carmona stated that in 2003, over 300,000 American citizens would die from illnesses related to overweight and obesity. He also argued that obesity contributes to the main cause of death in the United States: heart disease (Carmona, 2003). In addition to the costs of health disease and other related illnesses, Carmona and the HHS (2003) claimed:

Excess weight has also led to an increase in the number of people suffering from Type 2 diabetes. There are at least 17 million Americans with diabetes, and another 16 million have pre-diabetes. Each year, diabetes costs America $132 billion. It can lead to eye diseases, cardiovascular problems, kidney failure, and early death.

A March 2011 Washington Post article discussed the recent increase of Type 2 diabetes and the shocking statistics associated with it. Type 2 diabetes is a disease that is often linked to being overweight. The article stated, “as recently as the mid-1990s, Type 2 diabetes was almost exclusively a disease of adults” (Brink, 2011). However, with the recent childhood obesity epidemic, “cases in people younger than 20 have ramped up from virtually zero to tens of thousands in the United States in little more than a decade” (Brink, 2011). As a result, 80 percent of Type 2 diabetes patients are overweight or obese (Brink, 2011). According to the National Institutes of Health, diabetes “costs the U.S. health-care system $174 billion a year” (Brink, 2011). In addition, Susan Brink of the Washington Post discussed the health factors of “pre-diabetes,” which Surgeon General Carmona discussed in his 2003 testimony House of Representatives. Brink (2011) stated, “more than 25 million Americans have diabetes (more than 90 percent have Type 2), according to the National Institute of Diabetes and Digestive and Kidney Disease – but an
additional 70 million have a condition called pre-diabetes.” Pre-diabetes is when “blood sugar levels are higher than normal but not as high as in diabetes” (Brink, 2011).

For the purposes of this paper, it is important to mention, “obesity related medical costs occur not only in adult populations but in children as well.” As a result of the recent childhood obesity epidemic, “the annual costs of childhood obesity in the U.S. are estimated at about $14.3 billion” (Hammond & Levine, 2010, 287). The epidemic implies that future adults will more likely be overweight and obese. It also implies an increase in medical spending for obesity related issues and chronic diseases associated with obesity in adults (Hammond & Levine, 2010, 287).

In addition to the expected increase in direct medical costs of obesity in the future, Hammond and Levine (2010) have also identified three categories of potential economic increase and impact linked with the obesity epidemic: productivity costs; transportation costs; and human capital costs (Hammond & Levine, 2010, 285). Productivity costs refer to the indirect costs of the overall economic impact of obesity, for example, “absenteeism” (first-order productivity costs of employees being absent from work for obesity-related health reasons) and “presenteeism” (decreased productivity of employees while at work) (Hammond & Levine, 2010, 288). Other expected costs include transportation costs; Hammond and Levine (2010) stated that as more people become obese, more fuel will be used and potentially larger vehicles will be designed to transport the same number of travelers each year (291). As a result of this, the U.S. may witness a production of “a direct cost (in the form of greater spending on fuel), as well as potential indirect costs in the form of greater greenhouse gas emissions” (Hammond & Levine, 2010, 291).
As one can imagine, the above only displays a brief overview of the economics of obesity in the United States. Many other costs and factors are also associated with the economics of America’s obesity epidemic.

**Obesity and Social Inequalities: Race, Ethnicity, and Socioeconomic Status**

In the United States, obesity trends are the highest among low-income and minority communities. It is important to look at these two social inequalities as a result of the study to follow this literature review. The two Providence, Rhode Island elementary schools this study focuses on are located in low-income communities and are predominately made up of African-American and Hispanic students. According to Adam Drewnowski of the Center for Public Health Nutrition at the University of Washington (2009), obesity follows a “socioeconomic gradient, with the highest rates observed among racial/ethnic minorities and the poor” (S37). Obesity follows a gradient, “because as income and status rise incrementally, measures of health increase in a stepwise fashion” (Smith, 2009, 11). Many scholarly articles correlate obesity rates in low-income and minority communities. This is a result of a high percentage of African-Americans and Hispanic Americans, who are overweight and obese, who also live in low-income communities. However, whites and other races and ethnicities also live in low-income communities. Drewnowski (2009) states that “minorities and the poor are clearly at a disadvantage when it comes to the adoption of healthier eating habits” (S36). This section of the literature review will first examine obesity factors within low-income communities. It will then look at obesity among minority communities, specifically focusing on African-American and Hispanic American populations.
One of the biggest links between poverty and obesity is food insecurity. Food insecurity is defined as “the limited or uncertain availability of nutritionally acceptable or safe foods” (Drewnowski, 2009, S37) or where the “ability to acquire acceptable foods in socially acceptable ways is limited or uncertain” (Lee, PRB, 2006). The Food Research and Action Center (FRAC), which quotes Drewnowski throughout the 2005 report, states:

Low-income neighborhoods lack full-service grocery stores, and those which are in the community are less likely to have healthful foods. Food choices often are limited to small neighborhood conveniences stores, liquor stores or fast food outlets, where high-fat, high-calorie foods are more common, and fruits and vegetables, and non-and low-fat milk and low-fat snacks are not. The price of healthy foods is also a factor for many low-income households – healthy foods are often significantly more expensive, when they are available (7).

The Mari Gallagher Research and Consultant Group (MG) claims that “ninety percent of the diseases known to man are caused by cheap foodstuffs. You are what you eat” (2006, 6). MG discusses this key term “you are what you eat” as dating back to the 17th century and states “science has repeatedly demonstrated that nutritional intake directly affects health outcomes. That we are what we eat is a medical fact” (2006, 6).

According to the Population Reference Bureau (PRB), “the food environment in poorer neighborhoods makes it difficult for residents to eat healthful foods away from home” (Lee, 2006). As a result, Marlene Lee of the PRB claims that “poor children have higher rates of obesity (around 20 percent of all poor children) than do nonpoor children (around 15 percent)” (Lee, 2006). The above all links back to food insecurity. According to FRAC, in 2004 “11.9 percent of households (13.5 million households) were insecure
(with or without hunger), and 3.9 percent (4.4 million) were food insecure with hunger” (2005, 12). The FRAC defines “hunger” as the “uneasy or painful sensation caused by lack of food” (2005, 11). The above percentages total the United States’ food insecure households, which include “24.3 million adults and 13.9 million children, a total of 38.2 million individuals” (FRAC, 2005, 12). Joel Berg’s 2010 Center for American Progress report identified more specific statistics related to food insecure households in America. For example, Berg (2010) reported,

42 percent of families with children who were food insecure earned incomes below the poverty line (up to $17,170 for a family of three), 10 percent were between 100 to 130 percent of the poverty line (up to $22,321 for a family of three), and 6 percent had incomes of 100 to 185 percent of the federal poverty line (up to $31,764 for a family of three). A startling 21 percent earned incomes above 185 percent of the poverty line (above $31,764 for a family of three) (6).

A component that plays into food-insecure households and the high association that obesity has with food insecurity is energy-dense foods. Adam Drewnowski and Nicole Darmon claim that “the observed links between obesity and socioeconomic position may be a result to dietary energy density and energy costs” (American Society for Clinical Nutrition, 265S). Drewnowski states, “as incomes drop, energy-dense foods that are nutrient poor become the best way to provide daily calories at an affordable cost” (Nutrition Reviews, S36). Refined grains and added sugars and fats have contributed to dietary energy density (Drewnowski, ASCN, 265S). These redefined products are inexpensive, convenient, and good tasting (Drewnowski, ASCN, 265S). More importantly, energy-dense diets lead to overweight and obesity: “energy-dense foods and energy-dense diets have a lower satiating power and may result in passive overeating and
therefore weight gain” (Drewnowski, ASCN, 265S). Drewnowski’s research showed that
“more nutrient-dense lean meats, fish, fresh vegetables, and fruit generally cost more”
(ASCN, 265S), but families who live in low-income communities cannot afford these
foods, nor do they have access to them.

Low-income communities, such as the ones described above who suffer from
food insecurity and energy-dense foods or the lack of affordable and available healthy
foods, have been termed “food deserts,” or “large geographic areas with no or distant
grocery stores” (Mari Gallagher Research & Consulting Group, 2006, 6). Food deserts
“lack full-service grocery stores” (Drewnowski, 2005, 7) and instead “are limited to small
neighborhood conveniences stores, liquor stores or fast food outlets, where high-fat, high-
calorie foods are more common, and fruits and vegetables, and non-and low-fat milk and
low-fat snacks are not ” (Drewnowski, 2005, 7).

In addition, to food deserts, which encompass food insecurity and energy-dense
foods, there are also several other important predictors that contribute to high obesity
rates among low-income communities. These factors include the lack of safe and
attractive spaces for children to play and be physically active (FRAC, 2005, 7). Recreational facilities, such as parks and playgrounds, that are offered in low-income
communities are often inadequate and have experienced high on-site crime rates (FRAC,
2005, 7). Other factors include lack of funding for physical education, sports, and
afterschool programs in low-income school districts, (FRAC, 2005, 8). Social and
emotional factors, as well as a mother’s nutritional status while pregnant and/or nursing a
child also contribute to high obesity rates in low-income communities (FRAC, 2005, 8).

One final factor that links poverty and obesity is health care. According to the FRAC
“many low-income people lack access to basic health care, or, if health care is available, it is lower quality” (9). As a result of this lack of health care, low-income communities experience “less effective preventive care and lack of diagnosis and treatment of emerging chronic health problems like obesity” (FRAC, 2005, 9).

As Drewnowski (2009) says, “minorities and the poor are clearly at a disadvantage when it comes to the adoption of healthier eating habits” (S36). Again, these two inequalities often are presented together because researchers find the two equivalent. Although they can be similar and statistics show that minorities often live in low-income communities, it is important to distinguish between them. As mentioned above, whites and other races and ethnicities also live in low-income communities.

Childhood obesity rates and obesity rates in general among minorities have experienced a sharp increase throughout the past several decades. The Center for American Progress (2010) reported, “childhood obesity rates in African American and Hispanics increased by about 120 percent between 1986 and 1990, but among non-Hispanic whites it grew by 50 percent” (Sekhar, 1). According to the PRB (2006), “African American children (21 percent) and Mexican American children (23 percent) have higher rates of obesity than non-Hispanic white children (13 percent). In addition, “Hispanic and African American children are more concentrated in socioeconomically distressed neighborhoods than are non-Hispanic white children” (PRB, 2006); the connection between low-income and minority communities is apparent here. The Health Care System Foundation (HCS) reported, “more than 40 percent of African-American teenagers are overweight, and nearly 25 percent are obese” (2007, 1). The HCS (2007) also discussed obesity related diseases, such as diabetes, and reported, “Hispanic children
have the highest lifetime risk of diabetes (52 percent for boys, 45 percent for girls), followed closely by African-American children (49 percent for boys, 40 percent for girls)” (1). Again, these numbers often are high because of the connection minority populations have to low-income communities. The HCS (2007) reported, “African-American and Latino respondents believe that physical activity and healthy eating are important, but indicate that significant environmental barriers make it difficult for them to sustain healthy behaviors” (5). These “environmental barriers” can be directly related to food deserts (food insecurity and energy dense foods), the lack of spaces for children to be physically active, and the lack of community resources and school funding in socioeconomically distressed communities. The Mari Gallagher Research and Consultant Group also linked the two social inequalities; “African-Americans, on average, travel the farthest distance to any type of grocery store, and their low access communities cluster strikingly” (2006, 7).

Other organizations have also completed research studies on obesity and obesity-related diseases among minority youth. The Robert Wood Johnston Foundation (RWJF) presented the following statistics during its 2010 Leadership for Healthy Communities national program:

- 11.4 percent of young African American children ages 2 to 5 are obese (2).
- 35.9 percent of African-American children ages 2 to 19 are overweight or obese, compared with 31.7 percent of all children those age (2; Sekhar, 2010).
- “Over two decades, the prevalence of obesity climbed from 10.5 percent to 18.1 percent among all adolescents ages 12 to 19. For African-American adolescents, the prevalence of obesity rose from 13.4 percent to 24.4 percent” (2).
As a result of these shocking statistics, the RWJF (2010) also presented the following facts that were determined from their study to provide explanations to the high obesity percentages above:

- “African-American youths suffer a higher risk of developing chronic illnesses, including type 2 diabetes, hypertension and asthma, than their white peers” (1).
- “African-American adolescents are exposed to more food advertising on television than white adolescents” (1).
- “African-American communities have fewer supermarkets and recreational opportunities than white communities – limiting access to fresh fruits and vegetables and safe places for children to play” (1).

Similar statistics and facts have also been reported regarding obesity and minority communities. The NAACP (2010) released a Fact Sheet on minorities and obesity. Much like other research, the NAACP (2010) acknowledges that income disparities contribute to high obesity rates. In addition to what has been discussed above regarding income disparities, including the lack of recreational activities and access to quality foods, the NAACP also included regional income disparities. The NAACP (2010) claimed that obesity rates are highest in seven Southern states; these states also include high poverty rates. The states include, Mississippi, Louisiana, Kentucky, Alabama, Arkansas, Tennessee and West Virginia (NAACP, 2010). In addition, the NAACP (2010) also presented the following statistics in their Fact Sheet:

- “Mexican-American and Africa-American children ages 6 to 11 are more likely to be obese or overweight than white children”.
- “Almost 43 percent of Mexican-American children and almost 37 percent of African-American children are obese or overweight, compared with “only” about 32 percent of white children”.
- “African-American children are more likely to develop diabetes than white children because of childhood obesity”.

First Lady Michelle Obama has also been public on the issues of minority youth and obesity. Obama remarked at the 2010 NAACP National Convention, “African-American children are significantly more likely to be obese than are white children. Nearly half of African American children will develop diabetes at some point in their lives”, which she stated is about half of our nation’s children. The California Journal of Health Promotion mirrors Obama’s remarks in an article by Edward Wallace of Ithaca College. Wallace (2006) stated, “one in five African American children is obese, and there has been a ten-fold increase in the number of African American children with adult onset diabetes in the last five years” (129). In addition to minorities, such as African-Americans, experiencing the burdens of low-come communities, Wallace identified other factors that may contribute to obesity among minority populations. These factors claimed that a result of African American, and other minority groups, children suffering from the ongoing problem of obesity include, stress, depression, social isolation, and anxiety (Wallace, 2006, 129). All of these factors can also be linked to minority populations living in low-income communities.

Another factor to help explain why obesity rates are higher in minority communities comes from Lenny Bernstein (2009) in Opposing Viewpoints Series on Obesity (2011). Bernstein (2009) claimed, “minorities are more likely to be poor” (2009, 58), which contributes to them being obese. However, he also stated, “African Americans have traditionally eaten foods that are high in salt and fat” (2009, 58). Theses foods are known as “soul food” (Bailey, 1958, 61). Soul food is often associated with the African American diet and is also deemed unhealthy. Soul food can be defined in a number of ways. One participant in Eric Bailey’s research (1958) stated, “soul food is identified as
those foods that are generally used by black folks and prepared in that fashion. I would indentify soul food as home fries, compared to French fries, or deep fried chicken compared to baked chicken” (66).

As one can see from the above research, obesity trends in the United States are the highest among low-income and minority communities. This review of literature only provides a snapshot of some of the factors that contribute to the high obesity gradient in low-income and minority communities.

The U.S. Government’s Response to Combating Childhood Obesity

U.S. policymakers have shown support for combating the childhood obesity epidemic. National, state and local governments, private organizations, and non-governmental and community organizations have been working together to address the issue for decades. However, the issue of childhood obesity gained heightened attention in 2010 with celebrity involvement through national figures, such as First Lady Michelle Obama. Recently, the issue has been placed at the forefront of policy concerns.

Prior to White House involvement, which will be discussed in this section, many different actors have tried to address the issue of childhood obesity in the United States. For example, U.S. Surgeon General Richard Carmona stated in 2003 testimony before the House of Representatives, “I welcome this chance to talk with you about a health crisis affecting every State, every city, every community, and every school across our great Nation. The crisis is obesity. It’s the fastest growing cause of death in America” (Variyam, 2005). Currently, the U.S. has five basic federally funded child nutrition programs that provide food to children. Four of the programs are facilitated at sites where children are most likely to be, such as schools. The fifth program addresses nutrition in
the home. These five programs include the School Breakfast Program, the National School Lunch Program, the Summer Food Service Program, the Child and Adult Care Food Program, and the WIC Program (FRAC, 2005, 15). WIC is a special supplemental food program for Women, Infants and Children. Some claim that Food Stamps Program (SNAP) is also a critical program in providing food to children. While it is not usually considered a traditional child nutrition program, a large percent of food stamp beneficiaries are children (FRAC, 2005, 15). All of these programs serve a large portion of America’s public schools, predominately in lower-income communities. However, these programs are not accessible by all, which causes barriers. Some specific barriers include, school and geographic area, lack of knowledge, eligibility for the programs, inability to understand program applications (language barriers), and the lack of universal programming (FRAC, 2005, 20). Although each program is present in communities across the nation and aims to provide a portion of the USDA “recommended dietary allowances for key nutrients” to children each day, there is need for improvement (FRAC, 2005, 16).

The above federal-funded programs for childhood health and wellness have been around for decades. However, politicians are interested in revisiting this topic and improving existing programming and developing new programs to combat the epidemic of childhood obesity in the U.S. The following hearings, presented before the House of Representatives and Senate, provide an idea of how this issue has become an important policy issue throughout the past decade:

There have been policy implications as a result of the above and many other hearings. There have also been significant changes in creating a public dialogue by addressing the issue of childhood obesity through government initiatives as a result of a recent increase in childhood obesity and obesity related diseases in the past decade. First Lady Michelle Obama’s Let’s Move! initiative has fueled a conversation to solve the issue of childhood obesity within a generation. In February, 2010, the Let’s Move! initiative was launched. Let’s Move! is a comprehensive approach to end childhood obesity within a generation. The initiative encourages communities to get involved in all possible ways to solve the problem of childhood obesity. Let’s Move! challenges communities to think creatively to combat this issue. According to Sonia Sekhar from the Center for American Progress (2010):

The Let’s Move initiative is taking steps to make healthy, affordable food available to all children and promote physical activity by collaborating with a wide range of public and private stakeholders. The initiative enlists high-ranking cabinet officials from the departments of Agriculture, Defense, Education, Health and Human Services, House and Urban Development, Interior, Justice, and Transportation to augment the
activities of the departments so they prioritize reducing childhood obesity (3).

The coordination between the listed departments and agencies above will provide “coherence to the fragmented governmental efforts to reduce childhood obesity” (Sekhar, 4). Let’s Move! was followed by presidential memorandum calling for a report on the issue of childhood obesity. A White House Task Force on Childhood Obesity was established to complete this report. Composed of representatives from many federal departments and agencies, as well as key White House advisors, the task force was charged with designing strategies and benchmarks to guide childhood obesity-related work in various realms, complements of the Let’s Move initiative (Sekhar, 4). The Task Force, which had ninety days from February 2010 to report to President Obama, released recommendations in May 2010 “on how to address childhood obesity, including updating nutritional standards for school meals, improving the accessibility of parks, and equipping parents with the tools to keep their children healthy, among others” (Sekhar, 4). The complete list of recommendations can be found in the Task Force’s Report to the President (2010). The provisions of the First Lady’s Let’s Move initiative and the recommendations of the Presidential Task Force have served as a solid foundation for building broader efforts to reduce childhood obesity in America (Sekhar, 2). The initiative and report both have served as catalysts in solving the epidemic of childhood obesity.

Following the launch of Let’s Move! and the White House Task Force, an amendment to the Richard B. Russell National School Lunch Act and the Child Act of 1996 was submitted to the U.S. House of Representatives in June 2010. As a result of many efforts, the House and Senate passed a childhood nutrition bill on December 2,
Let’s Move! from DC to PC

2010. The new bill, titled the Healthy, Hunger-Free, Kids Act 2010, or S. 3307, provided $4.5 billion to help address the issue of childhood obesity in the U.S. (Kittredge, 2010; Kohan, 2010). The bill was signed into law on December 13, 2010 (Kittredge, 2010; Kohan, 2010). The Healthy, Hunger-Free, Kids Act 2010 improves access to healthy foods through increases in school meal programming and enhancing universal meal programs. In addition, it provided funds to state and local governments to promote food security in low-income areas (Kittredge, 2010). The bill also increased the focus on nutrition quality and children’s health by improving the quality of school meals, removing junk foods sold in schools, strengthening nutrition and wellness in the classroom, and connecting school districts with local farms. Finally, S. 3307 improved program management and program integrity by providing support for school food service budgets and by establishing and implementing professional training opportunities for school food service providers. In addition, the law updates and increases the efficiency of, the WIC program, and improves the safety requirements in school breakfast and lunch programs. It is also very important to point out that this bill is expected to save the U.S. government about 4.5 billion dollars over the next 10 years by the restructuring of nutrition in the education arena (Kittredge, 2010).

Of course these new governmental efforts have not come without critics, such as former Alaskan Governor Sarah Palin. Palin and other politicians have critiqued S. 3307 and the Let’s Move! initiative as government intervention and force on school districts. They counter that parents, not the government, should address their children’s health and wellness needs. Politicians such as Palin have also criticized the cost of these obesity programs. However, research shows that the economic cost of obesity in the United
States is roughly 10% of all U.S. medical spending, which is about $147 billion per year (2008 dollars) (Hammond & Levine, 2010, 287).

**Rhode Island Department of Education’s Curriculum and RI State Initiatives and Organizations on Childhood Health & Wellness**

The Rhode Island Department of Education (RIDE) has taken health education very seriously in the classroom. Rhode Island state law requires health education for all students in grades 1 – 12. According to the RIDE’s Comprehensive Health Instructional Outcomes, which was revised and rereleased in 2003, research has shown that “nearly half of young people aged 12-21 are not vigorously active on a regular basis” (4). Also included in the 2003 report were several categories that the Center for Disease Control and Prevention (CDC) had previously identified as risk behaviors in today’s students. These categories include, tobacco use, alcohol and drug use, sexual infections, insufficient physical activity, and dietary patterns that contribute to disease (RIDE, 2003, 4). As a result of these statistics and risk factors, among many others from previous years, RI began to reform its health education framework in 1995. The RI Department of Education claims that a comprehensive approach to student health and wellness is required to help students maintain health, prevent disease, and reduce risk (RIDE, 2003, 4). RIDE made the following statement regarding the RI Health and Education Framework (2003):

Research tells us that while health knowledge can change with health instruction, a minimum of 40-50 hours of health education is needed in order to impact behaviors. Health education is about prevention. A planned and sequential K-12 health education curriculum addresses all dimensions of health in a way that results in students who possess the knowledge and skills to live a healthy life.
The effort to reform RI health education began in 1995. In August of 1995, teachers, parents, health professionals, RIDE members, and others formed a taskforce to create a Health Education Framework for the state of Rhode Island. This taskforce reviewed issues that significantly impacted children’s health. In February 1996, the taskforce circulated a draft Health Education Framework to many different reviewers. In July 1996, the RI Department of Elementary and Secondary Education endorsed the Rhode Island Health Education Framework, *Health Literacy for All Students*. Soon after this endorsement, many different parties, including consultants, parents, teachers, and representatives from the RI Department of Education, Health, an Mental Health, and hospital staff members began meeting to begin to implement the framework the taskforce outlined in their report (RIDE, 2003).

According to the taskforce, “health education is part of an essential strategy to affect positively the health and education of children” (RIDE, 2003, 4). The taskforce argued that when children are healthy they could become better learners, and improve the quality of their lives of the society in which they live” (RIDE, 2003, 4). This investment of providing children with health education leads to positive outcomes.

The following outlines and highlights some specifics of the RI Health Education Framework that the taskforce presented in 1996, which is currently implemented as part of RIDE’s Health and Education Framework. According to the state requirements students should receive an average of 100 minutes of health and physical education (combined) per academic school week. The RI health standards are listed below. These standard are what all RI students should be able to achieve as a result of the 100 minutes of health and physical education provided each week in the school.

Rhode Island Health Education Standards
The seven standards describe what all Rhode Island students should know and be able to do as a result of K-12 health education.

**Standard One** – Students will understand concepts related to health promotion and disease prevention.

**Standard Two** – Students will demonstrate the ability to access valid health information and health-promoting products and services.

**Standard Three** – Students will demonstrate the ability to practice health-enhancing behaviors and reduce health risks.

**Standard Four** – Students will analyze the influence of culture, media, technology and other factors on health.

**Standard Five** – Students will demonstrate the ability to use interpersonal communication skills to enhance health.

**Standard Six** – Students will demonstrate the ability to use goal-setting and decision-making to enhance health.

**Standard Seven** – Students will demonstrate the ability to advocate for personal, family, community, and environmental health.

Outcomes are set for each of the above standards. Specific content topics and performance descriptions are attached to each standard. The following outcomes are in priority order to the above standards: (1) personal health; (2) mental and emotional health; (3) injury prevention; (4) nutrition; (5) sexuality and family life; (6) disease prevention and control; and (7) substance use and abuse prevention (RIDE, Office of Instruction, Assessment and Curriculum). According to Rhode Island state law, at the elementary level certified teachers must teach health education. This includes school nurse teachers, certified health educators, certified health and physical education teachers, or any certified elementary teacher (RIDE, Office of Instruction, Assessment and Curriculum). These standards and outcomes are measured and evaluated by the health education framework, which provides curriculum committees as resources to help
develop, revise, and improve the existing health education curricula in the State of Rhode Island (RIDE, Office of Instruction, Assessment and Curriculum).

Although the study that follows does not examine middle and high school students, it is important to look at what Rhode Island offers students as they advance in grade level. The Rhode Island Departments of Education and Health developed *thrive* in 1994, which is Rhode Island’s Coordinated School Health Program. *thrive* serves all middle and high school students in the state and was developed through funding from the CDC. The Departments of Education, Health and *thrive* work together to “build infrastructure supports with state, school, and community partners to help create safe, healthy, and nurturing schools that reduce barriers to learning” (RIDE, Office of Middle and High School Reform). *thrive* is aligned with the Rhode Island health education standards, outcomes, and framework above. According to the Rhode Island Department of Education, “*thrive* has also been successful in effecting legislative and regulatory changes, in developing and implementing policy as well as standards-based curriculum, instruction, and assessment, and in designing and providing professional development opportunities for school administrators, policy-makers, teachers, parents, students, and community organizations” (RIDE, Office of Middle and High School Reform). The eight fundamental principles of *thrive* include: (1) health education; (2) physical education; (3) health services; (4) nutrition services; (5) counseling, psychological, and social services; (6) school environment; (7) health promotion for staff, and (8) family and community involvement (RIDE, Office of Middle and High School Reform). Through these fundamental principles, *thrive* focuses on the following priority health issues: (1)
nutrition; (2) physical activity; (3) tobacco; (4) HIV/AIDS and sexuality; (5) food safety, and (6) mental health (RIDE, Office of Middle and High School Reform).

In addition to this concrete curriculum, RI has continued to take the issue of childhood obesity very seriously, in part as a result of the federal government’s recent response through programs such as *Let’s Move!* Prior to this attention, Rhode Island’s elected officials legislated programs relating to the obesity issue. Since the new federal initiatives, the state has developed and implemented new programs. For example, Rhode Island set its nutrition standards for school cafeterias higher than the current USDA regulations. Rhode Island developed the Rhode Island Nutritional Requirements (RINR), which outlines specific nutritional values that are focused upon in school cafeterias (RINR, 2009). These new requirements include the incorporation of whole grains, fruits, vegetable, 100% juice or milk, cooked legumes, and R.I. grown foods in the everyday breakfast, lunch, and/or snack programs of Rhode Island schools (H 7280 Substitute A, 2008). These new standards and values were officially introduced to Rhode Island schools in September 2010 and have continued to be incorporated into the daily nutrition factors within school cafeterias. More food-related curricula are expected to go into effect on September 1, 2012 throughout the state (H 7280 Substitute A, 2008).

In addition, Rhode Island has many active players working on these issues outside of the policymakers. Kids FIRST is a non-profit organization that highlights partnerships with school communities and food service providers to provide healthier snacks, healthier meals, and a farm-to-school program within Rhode Island classrooms and school cafeterias. (Quigley, 2010; Selby, 2010; Faulkner, 2010; Fox, 2009). In addition to the new nutrition standards implemented in Rhode Island cafeterias for the 2010-11 school
year, Kids FIRST helped implement a farm-to-school program. Farm-to-school provides healthy RI grown fruits and vegetables in the cafeteria for school lunches and in the classroom for snack (Quigley, 2010 Selby, 2010; Faulkner, 2010; Fox, 2009). These new RI standards call for at least three servings of fruits and vegetables, whole grains, and R.I. grown foods in the school cafeterias every day (Quigley, 2010 Selby, 2010; Faulkner, 2010; Fox, 2009).

Working closely with RIDE, other organizations also exist to promote the health and wellness of Rhode Island’s youth. RIDE and these organizations are constantly working towards better health education and awareness for students across the state. In addition, RIDE continues to update their health education framework and programming to meet the needs of and surpass the USDA and U.S. Department of Education’s health requirements.

The following case study was designed while taking all of the above literature into consideration. This program evaluation was influenced by the U.S. government’s recent response to combating childhood obesity, specifically the *Let’s Move!* initiative. In addition, the study was executed in two Providence, RI charter schools. The two schools were made up of a majority of African-American and Hispanic populations, and both schools were located in relatively low-income communities. Finally, both schools incorporated the Rhode Island Department of Education’s health education curriculum, as well as individual state and local initiatives on childhood health and wellness in the classroom.

The case study to follow was designed to examine if health education increases individual awareness of healthy living. The research questions designed, asked if health
education affects student’s awareness towards living a healthy lifestyle. The hypothesis that this author predicted was, the more health education provided, the more likely students will be aware of the importance of eating healthy and participating in physical activity.

**Methods**

**Participants**

This case study worked with two Providence, Rhode Island charter schools, Times 2 Academy and Paul Cuffee School. The study worked with 592 students at Times 2 Academy and Paul Cuffee School. All pieces of the study were intended to reach students kindergarten through grade five at Times 2 Academy and students grade one through five at Paul Cuffee School.

The following discussion and figures display the student makeup of both Times 2 Academy and Paul Cuffee School. These demographics were borrowed from the most recent 2007 – 08 Rhode Island School Accountability for Learning and Teaching (SALT)\(^1\) survey results. The 07 – 08 SALT survey targeted only 4\(^{th}\) and 5\(^{th}\) grade students in each school; however, these results are still a good tool to use in understanding the composition of the student population at both schools.

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\(^1\) The SALT survey is a study that was designed by the RI Department of Education to improve school and student performance in RI public schools. The following is taken from the RI Department of Elementary and Secondary Education’s website, [www.ride.ri.gov](http://www.ride.ri.gov): “SALT asks schools to begin by forming the school improvement team, which conducts various self-study activities including analyzing the results of state tests and the bi-annual SALT Survey of parents, teachers, and students. Based on what the team learns through self-study, it then develops a school improvement plan for improving student performance at a school report night, which is open to all members of the school and its community. Once every five years, the school hosts a SALT visit. As they put their improvement plans in place, schools, districts, and the Rhode Island Department of Education create a compact for learning, outlining the roles and responsibilities of each part of the school system.”
Times 2 Academy

Times 2 Academy is located in the Smith Hill neighborhood of Providence, RI. According to the Providence Plan Neighborhood Profiles, the Smith Hill neighborhood is made up of about 6,216 individuals (www.provplan.org). The population is made up of 36.4% Hispanic individuals and 28.9% non-Hispanic White (www.provplan.org). The most recent 2007 – 08 RI SALT survey results identified percentages that the majority of students who attended Times 2 were Hispanic and African-American. In addition, most students were eligible for free or reduced-price lunch. These percentages are displayed below in Figure 1.

Figure 1: Characteristics of students attending Times 2 Academy

Information Works! School Year 2007-08, www.infoworks.ride.uri.edu

For the purpose of this study, the SALT survey results were also used to examine survey results on student health practices, which are displayed in Figure 2. This part of the SALT survey was examined to provide an introduction to Times 2 student health risks. The percentages in the figure below are fairly low, which can be interpreted as a result of students eating vegetables on a daily basis, getting seven hours or more hours of sleep per night, and eating breakfast more than two days per week; all factors that contribute to overall health. In addition, Figure 3 displays the percentages of engaged
families within the Times 2 Academy community. As a result of this study’s intervention, family engagement was examined. Although the intervention was designed for the students, it was also developed to raise awareness among parents and guardians on the subject of healthy living at home. These percentages help to understand how seriously parents and guardians would take the intervention. As identified in Figure 3, parent participation rates at Times 2 Academy have not exceeded about 30% from the 2005 – 06 academic year to the 2007 – 08 academic year.

**Figure 2: Student Health Practices at Times 2 Academy**

**Figure 3: Engaged Families at Times 2 Academy**

Information Works! School Year 2007-08, [www.infoworks.ride.uri.edu](http://www.infoworks.ride.uri.edu)

Information Works! School Year 2007-08, [www.infoworks.ride.uri.edu](http://www.infoworks.ride.uri.edu)
Pre-Existing Health & Wellness Initiatives at Times 2 Academy

It is important to acknowledge health initiatives at Times 2 Academy that were simultaneously occurring as the facilitation of this study. In addition to weekly physical education classes for all students at Times 2 and RI health education requirements that are outlined in the review of literature, students were introduced to and educated about the food pyramid in health classes. The 5th grade classes at Times 2 also covered an educational unit on health and nutrition during the months that this study was being implemented. Unfortunately, no other information regarding pre-existing health and wellness initiatives was provided from Times 2 Academy. Paul Cuffee School provided an extensive list of initiatives and activities around health education that were simultaneously occurring as the facilitation of this study. Paul Cuffee initiatives could be found in the sections to follow.

Paul Cuffee School

Paul Cuffee School is located less than two miles from Times 2 Academy. However, Paul Cuffee is located in the Federal Hill neighborhood of Providence, RI. This neighborhood is made up of about 7,952 people (www.provplan.org). The majority of the population is Non-Hispanic White (46.9%) and Hispanic (32.1%) (www.provplan.org). Similarly to Times 2 Academy, the majority of students at Paul Cuffee School are Hispanic and African-American, according to the 2007 – 08 SALT surveys. There are more Hispanic students, but less African-American students at Paul Cuffee than Times 2. In addition, more students at Paul Cuffee are eligible for free or reduced-price lunch than at Times 2, however, this is still a majority of students at both schools. These percentages reflect, but
are not identical to the demographics at Times 2 Academy. The percentages are displayed below in Figure 4.

**Figure 4: Characteristics of students attending Paul Cuffee School**

<table>
<thead>
<tr>
<th>Characteristics of students attending this school</th>
<th>Student eligibility for subsidized lunch programs</th>
<th>Students from various racial/ethnic backgrounds</th>
<th>Students receiving ESL/bilingual education services</th>
<th>Students receiving special education services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education Status (Grades)</td>
<td>77%</td>
<td>12%</td>
<td>94%</td>
<td>16%</td>
</tr>
<tr>
<td>Eligibility for Free or Reduced-Price Lunch</td>
<td>23%</td>
<td>1%</td>
<td>8%</td>
<td>84%</td>
</tr>
<tr>
<td></td>
<td>Not Eligible</td>
<td></td>
<td>Nonrecipients</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Eligible for Free or Reduced-Price Lunch</td>
<td></td>
<td>English as a Second Language (ESL)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Bilingual</td>
<td></td>
</tr>
<tr>
<td>Racial/Ethnic</td>
<td>57%</td>
<td>21%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>African-American</td>
<td>12%</td>
<td>6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td></td>
<td>16%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hispanic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Native American</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Information Works! School Year 2007-08, [www.infoworks.ride.uri.edu](http://www.infoworks.ride.uri.edu)

The SALT survey was also examined in regards to student health practices at Paul Cuffee, which can be seen in Figure 5. SALT survey health practices results were reviewed to understand Paul Cuffee student health risks. Similarly to Times 2 Academy, the percentages in the figure below are fairly low, which again can be interpreted that students at Paul Cuffee School are eating vegetables on a daily basis, getting seven hours or more hours of sleep per night, and eating breakfast more than two days per week. In addition, Figure 6 identifies percentages of family engagement at Paul Cuffee School. These percentages were also examined to understand how likely parents and guardians would take the intervention pieces of this study seriously. As seen in Figure 6, parent participation rates at Paul Cuffee have dropped significantly from the 2005 – 06 academic year to the 2007 – 08 academic year.
Figure 5: Student Health Practices at Paul Cuffee School

![Graph showing student health practices]

Information Works! School Year 2007-08, [www.infoworks.ride.uri.edu](http://www.infoworks.ride.uri.edu)

Figure 6: Engaged Families at Paul Cuffee School

![Graph showing parent participation rates]

![Bar chart showing parents' satisfaction]

![Bar chart showing teachers' satisfaction]

Information Works! School Year 2007-08, [www.infoworks.ride.uri.edu](http://www.infoworks.ride.uri.edu)

Pre-Existing Health & Wellness Initiatives at Paul Cuffee School

Again, it is important to acknowledge the pre-existing health initiatives in existence and simultaneously occurring as the facilitation of this study. In addition to weekly physical education classes for all students at Paul Cuffee and RI health education requirements that are outlined in the review of literature, there was also an after-school program for the elementary school students called, Captain Nutrition. Captain Nutrition was an after school program that met every Friday afternoon focused on cooking and eating healthily. Students from Johnson and Wales University ran this after school program each week.
and taught students cooking skills, how to utilize fresh and locally grown ingredients, how to sanitarily prepare food, and helped students learn healthy eating habits and how to appropriately choose proportions.

There were also health initiatives and educational units that were taught during the same months that the intervention for this study was being implemented, December 2010 – February 2011. One 5th grade class participated in a 6-week pilot program with a local RI not-for-profit organization, Shape Up RI Kids. Shape Up RI Kids promoted healthy lifestyles through various programming and activities throughout different RI arenas. The pilot program was a 6-week competition where students wore a pedometer and logged their steps nightly. The participating 5th grade class at Paul Cuffee School won the challenge against several other classes statewide after logging in a total of 446,995 steps by the end of the competition. During the month of December 2010 all 5th grader students at Paul Cuffee completed a unit on nutrition, healthy eating, and exercise. Heart health was the focus throughout the months of January and February 2011. This unit included a guest teacher and nurse from Miriam Hospital who taught students basic hands-on CPR. Also during these months elementary students participated in Jump Rope for Hearts, an annual event sponsored by the American Heart Association. This program promoted physical activity, heart healthy living, and community service. Finally, the 4th grade students at Paul Cuffee completed a series of 6 nutrition lessons instructed by students from the University of Rhode Island throughout January and February 2011. These nutrition lessons taught students about the United States Department of Agriculture’s (USDA) MYPYRAMID, which helped students identify and choose healthy foods from each food group. This 6-week program incorporated healthy snack,
hands on activities, handouts for parents, and educational videos on food safety. Information about all of the above programs and units that students were involved in was sent home to parents.\(^2\)

All of the initiatives discussed above were taken into consideration as factors of the survey results for this study, which will be discussed later under “Discussion.”

**State of Rhode Island Health Education Requirements and Programs**

In addition to the above programming and educational units in the individual schools, health education is required by Rhode Island state law for all students in grades 1 – 12. The RI Department of Elementary and Secondary Education health education requirements were previously discussed in the review of literature. Those state standards and outcomes mentioned in the literature review were all important for the purposes of this study’s results. Another important factor in the results was the USDA’s Fresh Fruit and Vegetable Program (FFVP); a program that many RI public elementary schools participate in. The goal of this program “is to increase children’s consumption of fruits and vegetables by providing a fresh fruit and/or vegetable snack every day at school for free” ([www.usda.gov](http://www.usda.gov)). As a result of funding, RI schools, such as Times 2 and Paul Cuffee, were on a 2-day in-class snack schedule each week when this study was implemented. For the 2010 – 11 academic year, RI received $1,296,420 in funding for FFVP ([www.usda.gov](http://www.usda.gov)). FFVP continues to target only elementary schools with a high percentage of low-income students. As of the 2010 – 11 academic year, FFVP affected students in all 50 states, the District of Columbia, and U.S. Territories. Congress provided $110 million for the 2010 – 11 school year and $150 million was made available for the

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\(^2\) All Paul Cuffee School health initiatives provided by school nurse Kathleen Tudino, physical education teacher Marlon Mussington, and school website; [www.paulcuffee.org/news](http://www.paulcuffee.org/news).
2011 – 2012 academic year. Funds for this program are provided directly to the state. Individual schools then apply to the State for funding. FVVP participating schools are selected by the state and receive on average between $50-75 per student per year. These funds are separate from the School Breakfast and School Lunch Programs and must be spent to purchase fresh fruits and vegetables to serve as snacks. The FVVP was particularly important because most of this study’s intervention pieces sent home to parents were educational information, materials, and recipes based on the FVVP snack that students at Times 2 and Paul Cuffee ate in class during specific weeks. This will be discussed further under “Methods”.

All of the above information regarding health initiatives and programming was important to take into consideration when analyzing the survey results, as they may have had an effect on the pre- and post-survey. In other words, when the intervention pieces of this study were being implemented, students at both schools were also exposed to a number of programming and educational units in the classroom relating to health education, nutrition, and physical activity. These programs assumed a role in the conclusions of this study.

**Research Design & Procedure**

The quantitative research design of this study measured the quantity of student’s awareness towards living a healthy lifestyle. The design was prompted after my internship experience with the Office of the First Lady. During his spring 2010 White House internship, the author worked on Mrs. Obama’s *Let’s Move!* initiative, which is mentioned in the review of literature. *Let’s Move!* provides programming and resources

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to children, families, schools, and state and local communities regarding the importance of health, nutrition, and physical education. More importantly, the initiative provides educational resources and materials to make all individuals aware of the importance of living a healthy lifestyle beginning in the early years of a child’s life. Throughout the internship experience working on projects and programs related to this initiative the author concluded that one of the most powerful ways to affect change is through education. This study was designed to survey students’ awareness on nutrition and physical education, provide a minimal educational intervention, and then re-survey the same student populations to examine if their awareness changed as a result of the educational intervention they received. The intervention pieces also targeted parents and guardians of the students in hoping that the caretakers would review the intervention pieces with the children and implement the foods, recipes, and activities the intervention presented, in their family routine. However, when referencing Figure 3 and Figure 6 parent participation rates do not seem to be that high at Times 2 Academy or Paul Cuffee School. For the 2007 – 08 academic year, the SALT survey recorded about a 25% parent participation rate at Times 2 and about a 45% parent participation rate at Paul Cuffee, which dropped from 65% during the 2005 – 06 academic year. More importantly, at Times 2 Academy during 2007 – 08, only 45% of the teachers said that they were satisfied or very satisfied to which the parents and community are supportive of the schools and its programs. About 78% of teachers at Paul Cuffee during that same academic year said they were satisfied or very satisfied to which the parents and community were supportive of the schools and its programs. These numbers may or may
Let’s Move! from DC to PC

not have had an impact on the results of this study. However, it is the hope that the parents were supportive of this program.

This case study began in November 2010 with a pre-survey. The pre-survey, which the post-survey was identical to, can be found under “Appendix A” Pre- and Post-Survey. Teachers and faculty members from both schools facilitated the pre- and post-surveys in class. The survey asked for two identifying factors at the top of the page, grade (K – 5) and gender (boy or girl). The survey was seven questions long, four on eating and nutrition and three on physical activity. Two of the questions measured behavioral choices of the students and the others measured student attitudes. The survey was designed with the help of two Providence College Political Science professors. The first question served as an introductory preference question, which read, “What are your favorite foods to eat?” This provided the students with the opportunity to get a feel for the survey and understand the picture answers that were the same for several questions in a row. The first three questions had the same answer possibilities. Students were able to circle their answers out of a possible ten different foods that ranged from an apple to McDonald’s French fries. This first question provided the person analyzing the data the opportunity to gauge what most students liked to eat, healthy foods or more unhealthy foods. The second question asked students to decide what foods were good for them to eat and the third question asked students what foods they should eat the most of. For these two questions students were instructed to circle three out of the ten different food items. These two questions were designed not to see if students were eating these foods, but instead to see if students were aware of what foods are healthy and what foods they should eat the most of. The fourth question asked was the first behavioral choice
question. The students were asked to choose between an apple and a piece of cake. The fifth resembled question one by asking students to identify what their favorite things to do were in regards to activities. Again, students were provided a set of answers that ranged from watching television to participating in different sport activities. Question six resembled question two and three by trying to identify if students were aware of what activities are healthy for them to participate in. For question five and six, the students were again asked to choose three out of a possible ten activities. The final question was the second behavioral choice question. This question asked students to make a choice between watching television and playing tag.

After the pre-survey was completed at both schools, a local not for profit organization, Kids First, donated large colorful nutrition posters in English and Spanish for each school’s classrooms and common areas, such as the cafeteria. These posters were distributed at this time to provide a visual of healthy foods in hope that the students would begin thinking about and making themselves familiar with the food they put in their bodies after taking the pre-survey. The distribution of these posters is considered the first intervention of this study. During the first week of December 2010, the first of a series of five newsletters was sent home with each student. This newsletter was one page, one side in English and the other in Spanish. It was decided to put the newsletter in English and Spanish as a result of the above Figures 1 and 3. Figure 1 showed that the majority (48%) of students that made up Times 2 Academy were Hispanic. In addition, 100% of students at Times 2 received ESL/bilingual education services. Figure 4 identified that the majority (57%) of students at Paul Cuffee School were also Hispanic. The aim of providing the newsletter in English and Spanish was to attract more parents
and guardians to review the newsletter at home with their child. Since a majority of students at both schools were Hispanic it was decided to produce the newsletter in English and in Spanish as a way to target a larger population of students and caretakers. Teachers were asked to review each of the six newsletters in class, but results of this were immeasurable for this study. Five newsletters were distributed throughout six weeks from December 2010 – January 2011. The newsletters were titled, *You Are What You Eat* and focused on the snacks that the students were eating in class each week as a part of the FFVP. Connecting the intervention to what was already existent in the schools came at the suggestion of a Kids First staff member. The newsletters provided education about the fruits and vegetables that the students were being served as a snack from the FFVP. For example, most of the newsletters outlined the nutritional importance of that weeks specific fruit and or vegetable, but other newsletters provided healthy recipes provided by Kids First that incorporated the snack from that week’s FFVP. All five issues can be found under “Appendix B” Intervention 2 - 6: *You Are What You Eat* Newsletters. Below outlines the five newsletter topics:

<table>
<thead>
<tr>
<th>Week 1:</th>
<th>health and nutritional benefits of honeydew melons and clementines</th>
</tr>
</thead>
<tbody>
<tr>
<td>Week 2:</td>
<td>health and nutritional benefits of star fruit and broccoli</td>
</tr>
<tr>
<td>Week 3:</td>
<td>health and nutritional benefits of watermelon and blood oranges</td>
</tr>
<tr>
<td>Week 4:</td>
<td>health and nutritional benefits of grapes and strawberries</td>
</tr>
<tr>
<td>Week 5:</td>
<td>tomato, cucumber, and melon salad recipe</td>
</tr>
</tbody>
</table>

During the last week of January 2011 a packet was sent home with each student titled, *You Are What You Eat, Drink and Do!: A simple guide with tips and physical activity, fruit and vegetable intake, and healthy recipes*. Kids First provided most educational materials that made up this packet. Again, this packet was compiled in
English and Spanish. The packet provided a short physical activity checklist that parents could complete with their children as well as educational information on the importance of exercise, fruit, vegetable and water intake. A chart of seasonal fruits and vegetables was also included. The healthy packet also provided four simple and healthy recipes that parents could make with their children. In addition, the packet included contact information for Kids First, the Let’s Move! initiative, and the Farm Fresh Rhode Island Wintertime Farmers Market. This packet can be found in “Appendix C” Intervention 7: You Are What you Eat, Drink and Do!

Throughout the month of February 2011, the post-survey was facilitated by faculty members at Times 2 Academy and Paul Cuffee School. Following statistical methods, the post-survey was identical to the pre-survey and targeted the same population as the pre-survey.

**Data Analysis**

**Results**

This study’s quantitative research design measured the quantity of student’s awareness towards living a healthy lifestyle. It was predicted that the more health education provided, the more likely students will be aware of the importance of eating healthy and participating in physical activity. This hypothesis was supported by the below data.

The tables in this section of the paper display the percentages of students who responded to each question with healthy answers. In other terms, they display the percentages of students who received a healthy score of 3. Each variable is a question that was asked on the student survey. Several questions asked the respondents to circle three out of ten answers, hence why the healthy score is a maximum of 3 for each
question/variable. Each question had a set of healthy answers and a set of unhealthy answers. For each healthy answer circled the respondent received one point towards the maximum healthy score of 3. The healthy answers for the dependent variables, “identified 3 foods that are good for you” and “identified 3 foods that you should eat the most of” were an apple, carrots, pineapple, banana, and broccoli. The healthy answers for the dependent variables of “identified 3 activities that you should do” and “identified 3 activities that are healthy” were playing baseball, riding a bike, dancing, playing tag, playing basketball, and jump roping. The two dependent variables that prompted students to make a choice between two options had a healthy answer of an apple and to play tag. In the below tables, the dependent variables of “identified 3 foods that are good for you”, “identified 3 foods that you should eat the most of”, “identified 3 activities that you should do” and “identified 3 activities that are healthy” display students who received a maximum healthy score of 3. It is important to note that each question for the pre- and post-survey (and other independent variables) in all the tables have different respondent numbers. This is a result of students who followed the directions on the survey. For example, only students who circled three out of ten answers are displayed in the below tables. If the respondent did not follow directions and circled two answers or five answers, they were automatically eliminated and not included in the tables below.

All of the dependent variables, along with the independent variables of pre-survey, post-survey, sex, and school are a binary, nominal level measurement because the students had a choice in every instance to answer one or the other. The independent variable of grade is ordinal because there was up to six choices for the students (K – 5).
The tables and results displayed below start off broadly with a crosstabulation of both schools’ combined results and then are narrowed by examining the result through the lens of gender at both schools, the individual results of the schools, and finally gender results of each school.

**Percent of Students Who Chose All Healthy Answers: Pre- & Post-Survey Results**

Table 1 displays the results of the pre- and post-survey at both schools. Again, it was predicted that the more health education provided, the more likely students will be aware of the importance of eating healthy and participating in physical activity. This hypothesis was supported by the data in Table 1.

The first three dependent variables of Table 1 all show a positive change between pre- and post-responses. In addition, all three variables were statistically significant (at or below the .05 level). The dependent variable that reads “identified 3 foods that you should eat the most of” is significant at the <.000 level. The change from pre- to post-survey was a 14.1 value increase. The relationship between pre- and post-survey is very strong in this result with a high chi-square of 19.808. Based on the chi-square test I can reject the null hypothesis that states there is no significant difference between the pre- and post-survey even with the intervention; there is a statistically significant difference between the pre- and post-survey. The next two dependent variables that focus on activities “you should do” and that “are healthy” show a positive change between pre- and post-survey, but are not statistically significant. It is important to note that the percentages displayed for the dependent variable that reads, “identified 3 activities that you should do” are only students who choose 3 healthy activities you should do in the pre- and post-survey; students who received a healthy score of 3 for this question. 26.9%
Let’s Move! from DC to PC

of students identified 2 healthy activities you should do in the pre-survey and 34.7% in the post-survey. This also shows a positive change between the two surveys. These results will be discussed in the discussion section below. The final dependent variable of “chose to play tag or watch TV” was statistically significant at the .028 level and shows a positive change between pre- and post-survey. It is important to note that all 6 dependent variables show a positive change between pre- and post-survey.

Percent of Boys and Girls at Times 2 and Paul Cuffée Who Chose All Healthy Answers:
Pre- & Post-Survey Results

The relationship between pre- and post-survey and gender in Table 2 also support the hypothesis that the more health education provided, the more likely students will be aware of the importance of eating healthy and participating in physical activity.

Table 2 examines what Table 1 laid out through the lens of gender. The first dependent variable shows a positive change between pre- and post-survey for both boys and girls. However, in this first variable boys were not significant and girls were significant at the .029 level. For all but 2 dependent variables in this crosstabulation boys had a low chi-square and were not significant and girls had a higher chi-square and were significant. This will be discussed in the discussion below. In the second variable of “identified 3 foods that you should eat the most of”, boys had a chi-square of 11.975 and were significant at the .007 level. Girls were not significant. Based on the chi-square test I can reject the null hypothesis for the boys and say that there is a statistically significant difference between the pre- and post-survey. Possible reasons for why the girls were not significant will be presented in the discussion. The third variable of “chose an apple to eat over a piece of cake” identified a positive change in pre- and post-surveys for both boys
and girls. However, only the girls’ results were only statistically significant. Girls were significant at the <.000 level with a larger chi-square of 12.57. Again, as a result of the chi-square test I can reject the null hypothesis for the girls and say that there is a statistically significant difference between the pre- and post-survey. The fourth dependent variable, “identified 3 activities that you should do”, showed that neither boys nor girls were statistically significant. Again, it is important to note that the percentages displayed in Table 2 only represent boys and girls who chose 3 activities that you should do. There was a greater number of boys and girls who chose 2 activities. The final two variables that had to do with activities showed similar results to variables one and three; there was a positive change in pre- and post-survey for both boys and girls, but only girls were statistically significant.

*Percent of Students at Times 2 and Paul Cuffee Who Chose All Healthy Answers: Pre- & Post-Survey Results*

The relationship between pre- and post-surveys at each individual school examined shows that the hypothesis is also supported. Table 3 displays the percentages of students who chose healthy answers in both schools’ pre- and post-survey results.

Table 3 shows a positive change between pre- and post-survey for both schools. For all but the variable “identified 3 healthy activities” on the pre-survey and “identified 3 activities you should do” on the post-survey, Paul Cuffee School had higher percentages of students receiving a healthy score of 3 on the pre- and post-surveys. Although both schools had a positive change between pre- and post-survey, Paul Cuffee’s change between pre- and post-survey tended to be significantly higher than the change rate at Times 2. These results will be discussed in the discussion section below.
Percent of Boys and Girls at Times 2 and Paul Cuffee Who Chose All Healthy Answers: Pre- & Post-Survey Results

Table 4 and 5 display the breakdown of gender at each individual school. For the majority of what is presented in these tables, the hypothesis is supported. However, the breakdown of boys at Times 2 Academy does not entirely support the hypothesis. This will be discussed more in the discussion. Table 4 examines boys and girls at Times 2 Academy who chose all correct answers. Boys at Times 2 did not always show a positive change in the variables/questions. For example, boys did not show a positive increase in variables “identified 3 foods that are good for you”, “identified 3 activities that are healthy”, and “chose to play tag over watching TV.” In addition, boys did not show a large increase in the other three variables. For example, boys only showed a 2.7% increase in the variable, “chose an apple to eat over a piece of cake”. Girls at Times 2 Academy showed a positive change in all six variables from pre- to post-survey.

Table 5 shows boys and girls at Paul Cuffee School who chose all correct answers. Table 5 supports the hypothesis. For all but one variable, both boys and girls showed a positive increase from pre- to post-survey. Girls did not show a positive increase in the variable, “identified 3 activities you should do”. Overall, boys and girls at Paul Cuffee showed large percentage increases from pre- to post-survey.

Discussion

Throughout Tables 1 -5, a majority of the results identified a positive change from pre- to post-survey in both schools. Of course, it cannot be said conclusively that the intervention piece of this study explains the positive change and student improvements in the surveys. However, the intervention piece can be one reason for the positive change
and improvement from pre- to post-survey. Table 3 shows a larger positive percentage increase from pre- to post-survey at Paul Cuffee School than at Times 2 Academy. One explanation for this may be Paul Cuffee’s health education programming and initiatives that existed prior to this research being implemented. Paul Cuffee and Times 2 both follow detailed Rhode Island state health education policies; however, Paul Cuffee also had many other health education initiatives that were being implemented at the same time as the intervention of this study. These initiatives were outlined above under Participants. The educational in-class units, after-school programming, and other initiatives implemented at Paul Cuffee may be one reason for understanding the greater positive change in pre- to post-surveys at Cuffee over Times 2.

All of the tables show significantly lower percentages for the variable that reads, “identified 3 activities you should do” than other survey variables. For this variable a larger percentage of respondents in each table received a healthy score of 2. For example, for the combined school results displayed in Table 1, 26.9% of students identified 2 healthy activities you should do in the pre-survey and 34.7% in the post-survey. As mentioned above, respondents who are displayed in all the tables received a healthy score of 3; the maximum healthy score a respondent could receive. There are several explanations that may explain why a greater number of respondents were not able to identify three “activities you should do”, but were able to identify three foods “you should eat”. One explanation may be the picture answers of the activity questions. For example, the activity answer possibilities may have been too gendered; baseball, video games, and basketball may lean more towards a male respondent and the dancing and jump rope picture answers may lean more towards a female respondent. This may be one
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explanation, however, when examining Tables 4 and 5, respondents at Paul Cuffee seemed to be more apt to identify healthy activities than respondents at Times 2, regardless of gender. When examining Table 4, one can see that boys at Times 2 had a negative change in pre- to post-surveys in variables “identified 3 activities that are healthy” and “chose to play tag over watching TV”. Respondents at Paul Cuffee had a larger positive change from pre- to post-survey than respondents at Times 2. Again, a major factor of this more positive change at Cuffee may be a result of the pre-existing health education initiatives at Paul Cuffee. Another explanation may be that students do not associate physical activity with living healthy. Students may be more aware that nutrition, such as fruits and vegetables are healthy. One may question if students associate activity with being unhealthy.

Other results important to examine are the results displayed in Table 2. Girls were significant in four out of six variables. However, girls showed a positive increase in all six variables. One understanding of this may be that girls are more likely to respond better to educational information. This idea that girls are more likely to respond to health education information can also be applied to results displayed in Tables 4 and 5. Girls were not significant in variables, “identified 3 foods that you should eat the most of” and “identified three activities you should do” in Table 2. Again, this can be a result of girls not identifying physical activity as a factor that contributes to overall healthy living. However, for “identified 3 foods that you should eat the most of”, it can also be the exact opposite. This result may be explained by claiming that girl’s percentages were not significant in this case because the girls in both schools were already in line with what foods you should eat the most of. There may have been no room for improvement in the
case of the girls. One final explanation for this may be that girls pay more attention to their weight than boys. This may be due to the “ideal body image” portrayals of girls in American culture. Obviously, this is not good since more girls suffer from eating disorders than boys. However, this speculation may account for girl’s consciousness around healthy eating, as a result of it impacts on weight gain, compared to boys.

Although a majority of the results are what was predicted, all of the discussion analysis above is just speculation. The positive change in variables and statistically significant variables cannot solely be explained as a result of the intervention piece of this study. Although the intervention was carefully crafted, the pieces of the intervention were not measurable. The five-week healthy newsletter was designed and intended to be reviewed in class by the teachers before being sent home with each student. However, whether or not the teachers reviewed the newsletter in class was not measurable. Another factor that was not measurable was parent participation in this study. It was not measurable as to whether parents reviewed the newsletters and health education packet with their child.

Overall, the hypothesis that reads, the more health education provided, the more likely students will be aware of the importance of eating healthy and participating in physical activity, is supported throughout Tables 1-5.

**Conclusion**

This study has shown that in essence, education applied to the issue of childhood obesity in America makes a difference. My hypothesis that the more health education provided, the more likely students will be aware of the importance of eating healthy and participating in physical activity, proved to be correct. This is seen through the positive
changes from pre- to post-survey in Tables 1 through 5. The positive changes in variables and statistically-significant variables cannot conclusively be explained as a result of the intervention of this study, as there were many other educational factors at each school that could have played a role in the positive changes. However, this study helps support current legislation, such as the Health, Hunger-Free, Kids Act 2010, and its ideas to strengthen nutrition and wellness education in the classroom as a way to successfully eliminate childhood obesity in America. This study also supports Rhode Island state policy, as exemplified in the RI Nutritional Requirements, and the ideas of the KIDS First organization in that providing more education on this topic will help increase the way families eat and participate in physical activity. If this education continues and grows, the ideas of the Let’s Move! initiative to end childhood obesity within a generation will come to full fruition.
References


33. RI Department of elementary and secondary education, (n.d.). Health literacy for all students: the ri health education framework. Rhode Island.

34. RI Department of elementary and secondary education, (2003). Comprehensive health educational outcomes. Providence, RI.


### Table 1 - Percent of Students Who Chose All Healthy Answers

<table>
<thead>
<tr>
<th>Activity</th>
<th>Pre-Survey</th>
<th>Post-Survey</th>
<th>Chi-Square</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identified 3 Foods that are Good For You</td>
<td>288/343</td>
<td>241/267</td>
<td>7.945</td>
<td>.047*</td>
</tr>
<tr>
<td></td>
<td>84.0%</td>
<td>90.3%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identified 3 Foods that you Should Eat the Most of</td>
<td>251/366</td>
<td>235/284</td>
<td>19.808</td>
<td>.000*</td>
</tr>
<tr>
<td></td>
<td>68.6%</td>
<td>82.7%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chose an Apple to Eat Over a Piece of Cake</td>
<td>172/411</td>
<td>94/312</td>
<td>10.478</td>
<td>.001*</td>
</tr>
<tr>
<td></td>
<td>58.2%</td>
<td>69.9%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identified 3 Activities that You Should DO</td>
<td>11/342</td>
<td>12/271</td>
<td>6.755</td>
<td>.080</td>
</tr>
<tr>
<td></td>
<td>3.2%</td>
<td>4.4%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Identified 3 Activities that are Healthy</td>
<td>260/367</td>
<td>229/284</td>
<td>6.090</td>
<td>.107</td>
</tr>
<tr>
<td></td>
<td>72.8%</td>
<td>80.6%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chose to Play Tag over Watching TV</td>
<td>271/411</td>
<td>228/310</td>
<td>4.804</td>
<td>.028*</td>
</tr>
<tr>
<td></td>
<td>65.9%</td>
<td>73.5%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Statistically Significant
Table 2 - Percent of Boys and Girls Who Chose All Healthy Answers

<table>
<thead>
<tr>
<th></th>
<th>Pre-Survey BOYS</th>
<th>Pre-Survey GIRLS</th>
<th>Post-Survey BOYS</th>
<th>Post-Survey GIRLS</th>
<th>Chi-Square BOYS</th>
<th>Chi-Square GIRLS</th>
<th>Sig. BOYS</th>
<th>Sig. GIRLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identified 3 Foods that are Good For You</td>
<td>128/164 78.0%</td>
<td>159/178 89.3%</td>
<td>105/121 86.8%</td>
<td>132/141 93.6%</td>
<td>3.642</td>
<td>9.021</td>
<td>.303</td>
<td>.029*</td>
</tr>
<tr>
<td>Identified 3 Foods that you Should Eat the Most of</td>
<td>107/178 60.1%</td>
<td>144/188 76.6%</td>
<td>101/131 77.1%</td>
<td>129/148 87.2%</td>
<td>11.975</td>
<td>7.237</td>
<td>.007*</td>
<td>.065</td>
</tr>
<tr>
<td>Chose an Apple to Eat Over a Piece of Cake</td>
<td>120/201 59.7%</td>
<td>116/207 56.0%</td>
<td>97/148 65.5%</td>
<td>119/161 73.9%</td>
<td>1.236</td>
<td>12.537</td>
<td>.266</td>
<td>.000*</td>
</tr>
<tr>
<td>Identified 3 Activities that You Should DO</td>
<td>1/166 .6%</td>
<td>10/175 5.7%</td>
<td>3/131 2.3%</td>
<td>9/136 6.6%</td>
<td>2.965</td>
<td>6.985</td>
<td>.397</td>
<td>.072</td>
</tr>
<tr>
<td>Identified 3 Activities that are Healthy</td>
<td>120/169 71.0%</td>
<td>139/187 74.3%</td>
<td>101/133 75.9%</td>
<td>124/146 84.9%</td>
<td>1.991</td>
<td>7.838</td>
<td>.574</td>
<td>.049*</td>
</tr>
<tr>
<td>Chose to Play Tag over Watching TV</td>
<td>128/200 64.0%</td>
<td>142/208 68.3%</td>
<td>102/147 69.4%</td>
<td>126/160 78.8%</td>
<td>1.100</td>
<td>5.020</td>
<td>.294</td>
<td>.025*</td>
</tr>
</tbody>
</table>

*Statistically Significant
### Table 3 - Percent of Students at Times 2 Academy and Paul Cuffee School Who Chose All Healthy Answers

<table>
<thead>
<tr>
<th></th>
<th>Pre-Survey Times 2</th>
<th>Pre-Survey Paul Cuffee</th>
<th>Post-Survey Times 2</th>
<th>Post-Survey Paul Cuffee</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Identified 3 Foods that are Good For You</strong></td>
<td>175/209</td>
<td>113/134</td>
<td>126/144</td>
<td>96/100</td>
</tr>
<tr>
<td></td>
<td>83.7%</td>
<td>84.3%</td>
<td>87.5%</td>
<td>96.0%</td>
</tr>
<tr>
<td><strong>Identified 3 Foods that you Should Eat the Most of</strong></td>
<td>150/223</td>
<td>101/143</td>
<td>114/151</td>
<td>101/110</td>
</tr>
<tr>
<td></td>
<td>67.3%</td>
<td>70.6%</td>
<td>75.5%</td>
<td>91.8%</td>
</tr>
<tr>
<td><strong>Chose an Apple to Eat Over a Piece of Cake</strong></td>
<td>145/253</td>
<td>94/158</td>
<td>117/170</td>
<td>87/118</td>
</tr>
<tr>
<td></td>
<td>57.3%</td>
<td>59.5%</td>
<td>68.8%</td>
<td>73.7%</td>
</tr>
<tr>
<td><strong>Identified 3 Activities that You Should DO</strong></td>
<td>6/210</td>
<td>5/132</td>
<td>8/147</td>
<td>4/100</td>
</tr>
<tr>
<td></td>
<td>2.9%</td>
<td>3.8%</td>
<td>5.4%</td>
<td>4.0%</td>
</tr>
<tr>
<td><strong>Identified 3 Activities that are Healthy</strong></td>
<td>161/220</td>
<td>99/137</td>
<td>112/151</td>
<td>104/111</td>
</tr>
<tr>
<td></td>
<td>73.2%</td>
<td>72.3%</td>
<td>74.2%</td>
<td>93.7%</td>
</tr>
<tr>
<td><strong>Chose to Play Tag over Watching TV</strong></td>
<td>155/252</td>
<td>116/159</td>
<td>114/170</td>
<td>96/116</td>
</tr>
<tr>
<td></td>
<td>61.5%</td>
<td>73.0%</td>
<td>67.1%</td>
<td>82.8%</td>
</tr>
</tbody>
</table>
Table 4 - Percent of Boys and Girls Who Chose All Healthy Answers at Times 2

<table>
<thead>
<tr>
<th></th>
<th>Pre-Survey BOYS</th>
<th>Pre-Survey GIRLS</th>
<th>Post-Survey BOYS</th>
<th>Post-Survey GIRLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identified 3 Foods that are Good For You</td>
<td>80/102</td>
<td>94/106</td>
<td>50/65</td>
<td>73/77</td>
</tr>
<tr>
<td></td>
<td>78.4%</td>
<td>88.7%</td>
<td>78.1%</td>
<td>94.8%</td>
</tr>
<tr>
<td>Identified 3 Foods that you Should Eat the Most of</td>
<td>64/112</td>
<td>86/111</td>
<td>46/67</td>
<td>65/81</td>
</tr>
<tr>
<td></td>
<td>57.1%</td>
<td>77.5%</td>
<td>68.7%</td>
<td>80.2%</td>
</tr>
<tr>
<td>Chose an Apple to Eat Over a Piece of Cake</td>
<td>73/123</td>
<td>69/127</td>
<td>49/79</td>
<td>67/90</td>
</tr>
<tr>
<td></td>
<td>59.3%</td>
<td>54.3%</td>
<td>62.0%</td>
<td>74.4%</td>
</tr>
<tr>
<td>Identified 3 Activities that You Should DO</td>
<td>0/102</td>
<td>6/107</td>
<td>1/70</td>
<td>7/75</td>
</tr>
<tr>
<td></td>
<td>.0%</td>
<td>5.6%</td>
<td>1.4%</td>
<td>9.3%</td>
</tr>
<tr>
<td>Identified 3 Activities that are Healthy</td>
<td>76/109</td>
<td>84/110</td>
<td>46/69</td>
<td>63/79</td>
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<tr>
<td></td>
<td>69.7%</td>
<td>76.4%</td>
<td>66.7%</td>
<td>79.7%</td>
</tr>
<tr>
<td>Chose to Play Tag over Watching TV</td>
<td>74/122</td>
<td>80/127</td>
<td>47/80</td>
<td>67/89</td>
</tr>
<tr>
<td></td>
<td>60.7%</td>
<td>63.0%</td>
<td>58.8%</td>
<td>75.3%</td>
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</table>
Table 5 - Percent of Boys and Girls Who Chose All Healthy Answers at Paul Cuffee School

<table>
<thead>
<tr>
<th>Activity</th>
<th>Pre-Survey BOYS</th>
<th>Pre-Survey GIRLS</th>
<th>Post-Survey BOYS</th>
<th>Post-Survey GIRLS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identified 3 Foods that are Good For You</td>
<td>48/62</td>
<td>65/72</td>
<td>43/44</td>
<td>52/54</td>
</tr>
<tr>
<td></td>
<td>77.4%</td>
<td>90.3%</td>
<td>97.7%</td>
<td>96.3%</td>
</tr>
<tr>
<td>Identified 3 Foods that you Should Eat the Most of</td>
<td>43/66</td>
<td>58/77</td>
<td>43/51</td>
<td>56/57</td>
</tr>
<tr>
<td></td>
<td>65.2%</td>
<td>75.3%</td>
<td>84.3%</td>
<td>98.2%</td>
</tr>
<tr>
<td>Chose an Apple to Eat Over a Piece of Cake</td>
<td>47/78</td>
<td>47/80</td>
<td>41/56</td>
<td>45/60</td>
</tr>
<tr>
<td></td>
<td>60.3%</td>
<td>58.8%</td>
<td>73.2%</td>
<td>75.0%</td>
</tr>
<tr>
<td>Identified 3 Activities that You Should DO</td>
<td>1/64</td>
<td>4/68</td>
<td>2/48</td>
<td>2/50</td>
</tr>
<tr>
<td></td>
<td>1.6%</td>
<td>5.9%</td>
<td>4.2%</td>
<td>4.0%</td>
</tr>
<tr>
<td>Identified 3 Activities that are Healthy</td>
<td>44/60</td>
<td>55/77</td>
<td>47/51</td>
<td>56/58</td>
</tr>
<tr>
<td></td>
<td>73.3%</td>
<td>71.4%</td>
<td>92.2%</td>
<td>96.6%</td>
</tr>
<tr>
<td>Chose to Play Tag over Watching TV</td>
<td>54/78</td>
<td>62/81</td>
<td>46/54</td>
<td>50/60</td>
</tr>
<tr>
<td></td>
<td>69.2%</td>
<td>76.5%</td>
<td>85.2%</td>
<td>83.3%</td>
</tr>
</tbody>
</table>
Appendix A: Pre- and Post-Survey Example

GRADE: ______

BOY: ______ GIRL: ______

PLEASE LISTEN TO THE QUESTIONS BEING READ AND CIRCLE YOUR ANSWER BELOW.

1. WHAT ARE YOUR FAVORITE FOODS TO EAT?

- Ice cream
- Apple
- Cake
- Carrots
- Reese's
- Pineapple
- French fries
- Banana
- Hot dog
- Broccoli

2. WHAT FOODS ARE GOOD FOR YOU? (CIRCLE 3)

- Ice cream
- Apple
- Cake
- Carrots
- Reese's
- Pineapple
- French fries
- Banana
- Hot dog
- Broccoli
3. WHAT FOODS SHOULD YOU EAT THE MOST OF? (CIRCLE 3)

4. WOULD YOU CHOOSE TO EAT AN apple OR chocolate?

5. WHAT ARE YOUR FAVORITE THINGS TO DO? (CIRCLE 3)
6. WHAT THINGS HELP MAKE YOU HEALTHY? (CIRCLE 3)

7. WOULD YOU CHOOSE TO ❌ OR ❌?
Appendix B: Intervention 2 – 6

*You Are What Your Eat* Newsletter Examples

**Honeydew Melons & Clementines**

Honeydew Melons & Clementines are excellent sources of POTASSIUM!

- Potassium helps *kidneys* function properly and is important for *heart* health!

- *Potatoes, bananas, and fish are also great sources of potassium!*

**Honeydew Melons & Clementines**

provide you with about half of the VITAMIN C you need for one day

- Vitamin C helps *prevent colds!*

- *Broccoli, strawberries, and tomatoes are all high in Vitamin C!*

Prepared by Carmine Perrotti
Providence College, Class of 2011
Melones dulces & clementinas

¡Melones dulces y clementinas son fuentes excelentes de POTASIO!

- ¡Potasio ayuda en la función de los riñones y es importante para la salud cardíaca!

- ¡Patatas, bananas y pescado también son fuentes excelentes de potasio!

Melones dulces y clementinas proporcionan la mitad de lo que necesita en Vitamina C por un día

- ¡Vitamina C ayudarle a prevenir los resfriados!

- ¡Brócoli, fresa y tomates tiene niveles altas de Vitamina C!

Preparado por Carmine Perrotti
Providence College, la promoción del 2011
Let’s Move! from DC to PC

You Are What You Eat!
Volume 1, Issue 2, 12/6—12/10/2010

Star Fruit & Broccoli

Star fruit is high in calcium

- Calcium helps keep bones healthy!

- Star Fruit is a juicy tropical fruit grown throughout Southeast Asia, Australia, South America, Hawaii and Florida

- Star fruit is a good source of Vitamin C, which helps keep away winter colds!

Broccoli is high in Vitamin A

- Vitamin A is important for eye health!

- Eat broccoli chopped in salads, soups, stir-fry, sautéed, in casseroles, boiled, steamed or raw!

Prepared by Carmine Perrotti
Providence College, Class of 2011
¡Somos lo que!

Volumen 1, Número 2, 6 de diciembre-10 de diciembre de 2010

Carambola & Brócoli

Carambola tiene altos niveles de calico

- ¡Calcio ayuda a mantener huesos sanos!

- Carambola es una fruta tropical cultivada en Sudeste Asiático, Australia, América del Sur, Hawai y Florida

- Carambola es un fuente excelente de la Vitamina C que previene los resfriados

Brócoli tiene altos niveles de Vitamina A

- ¡Vitamina A es importante para la salud de los ojos!

- ¡Coma brócoli en ensaladas, sopas, frito o salteado, en cazuelas, hervido, al vapor o crudo!

Preparado por Carmine Perrotti
Providence College, la promoción del 2011
Watermelon & Blood Oranges

- Watermelon is a safe alternative to energy drinks. Watermelons contain a high water quantity that hydrates us whereas energy drinks are caffeine filled and can easily dehydrate us.

- Blood oranges are smaller than the average orange and have a deep red color on the inside. They are juicier and sweeter than the average orange.

- Blood oranges are only available in stores from late December through early May.

- Blood oranges contain vitamin C, calcium and Vitamin A.
Sandía

- Sandía es una alternativa sana en lugar de las bebidas de energía. Sandía contiene una alta cantidad de agua que nos hidrata cuando las bebidas de energía son llenas de cafeína y fácilmente nos se deshidratan.

Naranjas sanguinas

- Naranjas sanguinas son menos grandes que las naranjas típicas y tiene un color roja intensa dentro de la fruta. Son mas jugosas y dulces que las naranjas típicas.

- Naranjas sanguinas solo son disponibles en los supermercados desde diciembre hasta mayo.

- Naranjas sanguinas contiene Vitamina C, calcio y Vitamina A.
Grapes & Strawberries

Grapes are full of Vitamin K.
- **Vitamin K** helps protect your *bones*!

Strawberries are high in potassium.
- **Potassium** helps *muscles* function properly!

Grapes and Strawberries are full of Vitamin C.
- **Vitamin C** helps protect your *heart, eyes, and skin*!
Uvas & Frutillas

Uvas son llenas de vitamina K.
- ¡Vitamina K protege los huesos!

Frutillas tienen altos niveles de potasio.
- Potasio ayuda los músculos en funcionar apropiadamente!

Uvas y frutillas son llenas de vitamina C.
- Vitamina C protege el corazón, los ojos y la piel!
Did you know that tomatoes and cucumbers are considered a fruit because they both have seeds?

**Tomato, Cucumber, and Melon Salad:**
A healthy and simple recipe to make at home

**Servings:** 6

**Ingredients:**
- 2 red tomatoes, cut into wedges
- 1 large melon, cut into wedges
- 1 cucumber, peeled and sliced
- 1/2 small red onion, thinly sliced
- 3 tablespoons red-wine vinegar
- 2 tablespoons extra-virgin olive oil
- Salt and pepper to taste
- Several sliced basil leaves, if desired

**Preparation:**
1. Combine the tomatoes, melon, cucumber, and onion together in a large bowl.
2. Combine and mix vinegar, oil, salt, and pepper in a small bowl.
3. Pour mixture over the salad and toss together.
4. Sprinkle basil leaves over mixture, if desired
5. Cover and refrigerate or simply serve.

Recipe compiled from www.thedailygreen.com

Prepared by Carmine Porrotti
Providence College, Class of 2011
¿Sabía que los tomates y pepinos son considerados una fruta porque ambos tienen semillas?

Tomate, pepino e ensalada de melón:
Una receta saludable y sencilla para hacer en la casa

Porciones: 6

Ingredientes:
-2 tomates, cortados en rajas
-1 melón grande, cortado en rajas
-1 pepino, pelado y cortado en rodajas
-1/2 de una pequeña cebolla roja, finamente cortada
-3 cucharadas de vinagre de vino tinto
-2 cucharadas de aceite de oliva virgen
-Agregue sal y pimienta a su gusto
-Albahaca cortada, si es deseado

Preparación:
1. Mezcle los tomates, melones, pepinos y las cebollas en un tazón grande
2. Mezcle y agregue vinagre, aceite, sal y pimienta en un tazón pequeño
3. Echa la mixtura sobre la ensalada y mezclan
4. Espolvorea la mezcla con la albahaca, si es deseado
5. Cobre y refrigera o simplemente sirve

Receta recolectada en www.thedailygreen.com

Preparado por Carmine Perrotti
Providence College, la promoción del 2011
Appendix C: Intervention 7

You Are What YOU Eat, Drink and Do!

A simple guide with tips about physical activity, fruit and vegetable intake, and healthy recipes.

¡Es lo que USTED Come, Bebe y Hace!

Una guía sencilla con puntos acerca de actividad física, acerca de la fruta y toma vegetal, y acerca de recetas sanas.

All information and recipes provided by Kids First, Inc.
Information compiled by Carmine Perrotti, Providence College – February 2011

CHECK KIDS FIRST OUT:
KIDS FIRST, Inc. HOPE ARTISTE VILLAGE 1005 Main Street Suite #1225 Pawtucket Ph: 401-475-9696 www.kidsfirtsri.org E-Mail: info@kidsfirtsri.org
Take a Fresh Look at Nutrition

Your Physical Activity Check-Up

Staying active is key to a healthy lifestyle. Renew the physical activities you enjoy. Place a ✓ in the appropriate box and see how your level of activity measures up.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Frequently</th>
<th>Sometimes</th>
<th>Never</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I take the stairs instead of the elevator</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. I enjoy leisure activities (golf, bowling, gardening)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. I participate in aerobic activity (biking, swimming, jogging)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. I take a brisk walk to start my day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. I limit TV watching to one or two hours a day</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. I walk or ride a bike to run nearby errands rather than drive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. I enjoy recreational sports (tennis, volleyball, basketball)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. I walk before lunch or after dinner</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. I stretch and strengthen my muscles</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. I park at the far end of a parking lot or get off the bus a stop ahead</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

My total ✓'s:

Multiple by: X 3  X 2  X 1

My subtotal is:

By adding my subtotals together,
My Total Check-Up Score is: ____________

Check-up scale:
My score = 24-30: I lead a physically active lifestyle! I plan to continue it.
My score = 17-23: I need to boost my activity just a bit! I'll try this check-up again in a month to see how my level of activity measures up then.
My score = 10-16: I need to find more ways to include activity in my lifestyle!
Exercise

Why is regular physical activity important?
1. It builds strength, flexibility and endurance.
2. It gives you energy!
3. It lowers the risk of heart disease and other medical conditions.

How much exercise do you need?
- 30 minutes five times a week at a moderate pace

Types of physical activity:
1. Aerobic exercise gets your heart pumping and burns a lot of calories
   Examples of aerobic exercise: fast walking, jogging, swimming, biking, dancing, kick ball, etc.

2. Weight bearing and stretching increase flexibility, tones muscles and helps keep bones strong.
   Examples of weight bearing or stretching exercise: lifting weights or objects, carrying items, warm-up stretching, yoga, etc.

CHECK THIS OUT: www.letsmove.gov
Let's Move! Americas Move to Raise A Healthier Generation of Kids
**Ejercicio**

Porques es importante actividad fisica regularmente?
1. Ella edifica fortaleza flexibilidad y resistencia.
2. Da energía.
3. Disminuye el riesgo de enfermedades del corazón y otras condiciones medicas.

Cuanto ejercicio usted necesita?
- 30 minutos cinco veces a la semana a un paso moderado.

Tipos de actividad fisica:
1. **Ejercicios aerobicos** ponen a trabajar su corazón y quema una gran cantidad de calorías.

   Ejemplos de ejercicios aerobicos: caminando rápido, trotando, nadando, montando bicicleta, bailando, chutando la bola, etc.

2. **Alzando pesas y ejercicios de estiramiento** aumentan la flexibilidad, el tono muscular y ayuda a mantener los huesos fuertes.

   Ejemplos de ejercicios de estramieno y alzando pesas: levantando pesas o objetos, cargando objectos, calentamiento, estramieno, yoga, etc.

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**CHECK THIS OUT:** www.letsmove.gov

*Let’s Move! Americas Move to Raise A Healthier Generation of Kids*
Fruits, Vegetables & Water

How many fruits should you eat a day?
- You should try to consume 2 cups of fruit EVERY day.

What does a ½ cup serving equal?
- ½ C. fruit juice
- 1 medium piece of fruit (about the size of a tennis ball)
- ½ C. chopped, cooked or canned fruit

How many vegetables should you eat a day?
- You should try to consume 2 ½ cups of veggies EVERY day.

What does a ½ cup serving equal?
- ½ C. vegetable juice
- 1 C. raw leafy vegetables (about 4 green leaves)
- ½ C. cooked or raw other vegetables

*Fruits and vegetables supply our body with fiber, vitamins A & C as well as other nutrients.

*Vitamin A keeps our eyes, skin and bones healthy and helps to fight against cancer.

*Vitamin C cures cuts and infections, prevents cancer and is also good for your bones, teeth and skin.

How much water should we drink each day?
- Eight 8-oz glasses, or 64 oz of water EVERY DAY!

*Water is needed for all body functions such as digestion, breathing, metabolism and elimination of waste, regulation of normal temperature and blood circulation.

CHECK THIS OUT: www.farmfreshri.org
Farm Fresh Rhode Island: Wintertime Farmers Market
Wednesday: 4:00 PM to 7:00 PM, Saturday: 10:00 AM to 1:00 PM
November 6 to May 28, 2011 Hope Artiste Village, 1005 Main St. Pawtucket
Pay with Cash, Fresh Bucks, SNAP/EBT, WIC Fruit & Veg Coupons, Credit Cards
RIPTA Bus: 99
Frutas, Vegetales & Agua

Cuántas frutas debe usted comer al día?
- Usted debe tratar de consumir 2 tazas de frutas CADA DÍA.

A qué es igual una porción de $\frac{1}{2}$ taza?
- $\frac{1}{2}$ taza de jugo de fruta
- 1 pedazo de fruta mediano
- $\frac{1}{2}$ taza de fruta picada, cocida o enlatada

Cuántas vegetales debe usted comer al día?
- Usted debe tratar de consumir 2 $\frac{1}{2}$ tazas de vegetales CADA DÍA.

A qué es igual una porción de $\frac{1}{2}$ taza?
- $\frac{1}{2}$ taza de jugo de vegetales
- 1 taza de hojas de vegetales crudas (aproximadamente 4 hojas verdes)
- $\frac{1}{2}$ taza de otros vegetales crudos o cocidos

*Las frutas & los vegetales proveen nuestro cuerpo de fibras, vitaminas A & C al igual que otros nutrients.

*La vitamina A mantiene saludable nuestros ojos, piel y huesos, y ayuda a prevenir el cancer.

*La vitamina C cura heridas e infecciones, previene el cancer y tambien es Buena para nuestros huesos, dientes y piel.

Cuánta agua debemos beber cada día?
- Ocho vasos de 8 onzas, o 64 onzas de agua cada día.

*El agua es necesaria para todas las funciones del cuerpo tales como digestión, respiración, metabolismo y eliminación de residuos, regulación de temperatura y circulación de la sangre.

CHECK THIS OUT: www.farmfreshri.org

Farm Fresh Rhode Island: Wintertime Farmers Market
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RIPTA Bus: 99
Seasonal Fruits & Vegetables

When you buy fruits and vegetables during their peak season, you are able to get fresher, tastier produce for less money. This chart offers a sample of fruits and vegetables in season each month, and can be used to guide your menu planning and produce purchasing. Keep in mind that seasonal fruits and vegetables may vary by location.

<table>
<thead>
<tr>
<th>Month</th>
<th>Seasonal Fruits &amp; Vegetables</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>Avocados, bananas, cabbage, cauliflower, mushrooms, pears, potatoes, turnips, spinach and strawberries</td>
</tr>
<tr>
<td>February</td>
<td>Avocados, bananas, broccoli, cabbage, cauliflower, mangoes, mushrooms, and winter squash.</td>
</tr>
<tr>
<td>March</td>
<td>Artichokes, asparagus, avocados, bananas, broccoli, grapefruit, lettuce, pears, tangerines, and winter squash.</td>
</tr>
<tr>
<td>April</td>
<td>Asparagus, bananas, cabbage, escarole, onions, pineapple, mushrooms, radishes, and spinach.</td>
</tr>
<tr>
<td>May</td>
<td>Asparagus, bananas, celery, papaya, peas, pineapple, strawberries, and tomatoes.</td>
</tr>
<tr>
<td>June</td>
<td>Avocados, apricots, bananas, cantaloupe, cherries, corn, figs, green beans, limes, mangoes, nectarines, onions, peas, peppers, pineapple, plums, strawberries, and summer squash.</td>
</tr>
<tr>
<td>July</td>
<td>Apricots, bananas, blueberries, cabbage, cantaloupe, cherries, cucumbers, dill, eggplant, figs, green beans, nectarines, okra, peaches, peppers, prunes, strawberries and watermelon.</td>
</tr>
<tr>
<td>August</td>
<td>Apples, bananas, beets, berries, cabbage, carrots, cucumbers, dill, eggplant, figs, melons, nectarines, peaches, pears, peppers plums, potatoes, summer squash, and tomatoes.</td>
</tr>
<tr>
<td>September</td>
<td>Apples, bananas, broccoli, carrots, cauliflower, corn, cucumber, dill, figs, grapes, greens, melons, okra, onions, pears, potatoes, summer squash, tomatoes, and yams.</td>
</tr>
<tr>
<td>October</td>
<td>Apples, bananas, broccoli, cabbage, cauliflower, cranberries, dates, eggplant, mushrooms, pumpkin, and sweet potato.</td>
</tr>
<tr>
<td>November</td>
<td>Apples, bananas, broccoli, cabbage, cauliflower, cranberries, dates, eggplant, mushroom, pumpkin, and sweet potato.</td>
</tr>
<tr>
<td>December</td>
<td>Apples, avocados, bananas, grapefruit, lemons, limes, mushrooms, oranges, pears, pineapple, and tangerines.</td>
</tr>
</tbody>
</table>

Temporada de Frutas y Vegetales
Cuando compres frutas y vegetales durante la temporada alta, puedes conseguir productos más frescos y sabrosos por menos dinero. Esta guía ofrece un ejemplo de frutas y vegetales en temporada cada mes, y puede ser usada para planear su menú y compra de productos. Recuerde que la temporada de frutas y vegetales puede variar de acuerdo a la localidad.

<table>
<thead>
<tr>
<th>Mes</th>
<th>Frutas y Vegetales</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enero</td>
<td>Aguacates, guineos, repollo, coliflor, Hongos, peras, papas, navos, espinacas y fresas.</td>
</tr>
<tr>
<td>Febrero</td>
<td>Aguacates, guineos, broccoli, repollo, coliflor, mangos, hongos y calabaza.</td>
</tr>
<tr>
<td>Marzo</td>
<td>Artichoques, espárragos, aguacates, guineos, broccoli, toronja, lechuga, peras, mandarinas y calabaza.</td>
</tr>
<tr>
<td>Abril</td>
<td>Espárragos, guineos, lechuga, escarola, cebolla, piña, hongos, rabano, y espinaca.</td>
</tr>
<tr>
<td>Mayo</td>
<td>Espárragos, guineos, cebolla, papaya, guisantes, piña, fresa, y tomates.</td>
</tr>
<tr>
<td>Junio</td>
<td>Aguacates, albaricoques, guineo, cerezas, maíz, albaricoques, limones, mangos, mandarina, cebolla, melocotón, guisantes, ajíes, piña, ciruelos, fresas, y calabaza.</td>
</tr>
<tr>
<td>Julio</td>
<td>Albaricoques, plátanos, arándanos, lechuga, cerezas, melocotón, pepinos, eneldo, berenjena, higos, habas verdes, mandarina, molondrones, melocotones, ajíes, pasas, fresas y sandía.</td>
</tr>
<tr>
<td>Agosto</td>
<td>Manzanas, plátanos, remolacha, bayas, repollo, zanahoria, pepino, berenjena, eneldo, higos, melones, mandarina, melocotones, peras, ajíes, ciruelos, papas, calabaza, y tomates.</td>
</tr>
<tr>
<td>Septiembre</td>
<td>Manzanas, plátanos, broccoli, zanahoria, coliflor, maíz, pepino, eneldo, Hijos, huvas, habas, melones, molondron, cebolla, pera, papas, calabaza, tomates, y ñames.</td>
</tr>
<tr>
<td>Octubre</td>
<td>Manzanas, plátanos, broccoli, repollo, coliflor, arándanos, fresas, berenjenas, hongos, calabaza, y batatas.</td>
</tr>
<tr>
<td>Noviembre</td>
<td>Manzanas, plátanos, broccoli, repollo, coliflor, arándanos, fresas, berenjenas, hongos, calabaza, y batatas.</td>
</tr>
<tr>
<td>Diciembre</td>
<td>Apples, aguacate, guineo/platano, toronjas, limon, hongos, naranjas, peras, piña, y mandarinas.</td>
</tr>
</tbody>
</table>
**Stuffed Winter Squash**
4 Servings

**Ingredients:**
- 4 small winter squashes
- 1 tbsp. non-hydrogenated margarine or butter
- 1 large red onion (chopped)
- ¼ cup toasted almonds, finely chopped
- ½ tsp. grated fresh ginger OR ¼ tsp. ground ginger (optional)

**Instructions:**
1. Preheat oven to 375F.
2. Cut the squashes in half lengthwise. Place halves in a baking dish, cut side up, with about ½ inch of water, and cover with foil. Bake until easily pierced with a knife but still holding their shape, 30-40 minutes, depending on size and type of squash used.
3. When the squashes are cool enough to handle, scoop out and discard the seeds. Scoop out the pulp and transfer to a mixing bowl, leaving a sturdy shell of about ¼ inch thick all around.
4. Heat the margarine or butter in a medium skillet. Add onion and sauté over medium heat until golden. Add the almond and continue to sauté until they give off a toasty aroma.
5. Combine the onion mixture with the squash pulp. Add ginger, season with salt and pepper, and stir together. Stuff back in to the squash shells. Reheat in the microwave or oven, just until heated through, and serve.

---

**Hearty Harvest Stew**
4 Servings

**Ingredients:**
- ½ tbsp olive oil
- ½ garlic (chopped)
- ½ onion (diced)
- 2 stalks celery (diced)
- ½ granny smith apple (chopped)
- ½ pound mushrooms
- ½ zucchini (chopped)
- ½ sweet potato (chopped)
- ½ cup butternut squash (peeled and chopped)
- ½ tomato (chopped)
- 2 cups 100% apple juice
- Dash of cinnamon
- Water (as needed)

**Instructions:**
1. Wash all produce
2. In a large pot, heat the olive oil over a medium flame.
3. Add garlic, onion, celery, and apple; let cook for 5-8 minutes; stir.
4. Add remaining ingredients; stir and cover with apple juice.
5. If the vegetables are not completely covered, add enough water to cover.
6. Bring to a boil; reduce heat to a simmer. Keep covered.
7. Let cook until vegetables are tender; ladle into your favorite soup bowl; let cool and sprinkle with cinnamon.
**Relleno de calabaza**
4 porciones

**Ingredientes:**
- 4 pequeñas calabazas de invierno
- 1 cucharada margarina o mantequilla no-hidrogenada
- 1 grande cebolla roja, picada
- ¼ taza amêndoras tostadas, finamente picadas
- ½ cucharadita jengibre fresco gratinado

**Instrucciones:**
1. Precaliente el horno a 375°F
2. Corte las calabazas por la mitad hacia lo largo. Coloque las mitades con la pulpa hacia arriba en un molde de hornear, con aproximadamente ½ inche de agua, y cubra con papel de aluminio. Hornee hasta que sea fácil traspasarlas con un cuchillo pero manteniendo la forma, aproximadamente 30 a 40 minutos.
3. Cuando las calabazas estén suficientemente frías que se puedan manipular, remueva y descargue las semillas. Remueva la pulpa y transfiera a un tazón de mezcla, asegúrese de dejar aproximadamente ¼ de inche de pulpa pegado a todo el rededor de la cascarilla de las mitades.
4. Caliente la margarina o la mantequilla en una cacerola mediana. Adicione la cebolla y saltee a temperatura media hasta que se dore. Adicione las almendras y continue hasta que produzcan un aroma tostado.
5. Combine la mezcla de la cebolla con la pulpa de calabaza. Adicione el jengibre, sazone con sal y pimienta, y mezclelo. Rellene de Nuevo con esta mezcla las cascarillas de calabaza. Recaliente en el horno microondas o en el horno y sirva.

---

**Guisado de una Fuerte Cosecha**
4 porciones

**Ingredientes:**
- ½ cucharada aceite de oliva
- ½ cucharada ajo, picado
- ½ cebolla en cuadritos
- 2 tallos celery cortado en cuadritos
- ½ manzana picada
- ½ libra champiñones (de su gusto)
- ½ calabacin “zucchini” picado
- ½ taza papa dulce o batata, picada
- ½ taza calabaza “butternut squash” pelada y picada
- ½ tomate picado
- 2 tazas 100% jugo de manzana
- agua según la necesidad
- un poco canela

**Instrucciones:**
1. Lave todos los productos agrícolas.
2. En una olla grande, caliente el aceite de oliva a calor medio.
3. Adicione el ajo, cebolla, apio y manzana; dejelo cocinar de 4 a 5-8 minuto; revuelva.
4. Adicione el resto de ingredientes; revuelva y cubra con jugo de manzana.
5. Si los vegetales no están completamente cubiertos, adicione suficiente agua para cubrirlos.
6. Déjelo cocinar hasta que los vegetales estén tiernos; sirva en su plato favorito. Rocielas con canela.
As You Like It Pasta Bowl  
4 Servings

Ingredients:
4 cups whole wheat cooked pasta (or 2 cups dry)  
2 cans beans, drained and rinsed (chick peas, black, pinto, red kidney or white kidney beans)  
2-4 cups bite size vegetables (canned, fresh, or frozen)  

Dressing:
8 tbsp of your favorite salad dressing  

OR

4 tbsp vegetable oil  
1 tsp garlic powder  
4 tbsp lemon juice or vinegar  
½ tsp salt (optional)  
½ tsp black pepper

Instructions:
1. Combine all ingredients into a large bowl.  
2. Toss until well incorporated.  
3. If time allows, place in the refrigerator for 30 minutes.

Rice Pudding  
4 Servings

Ingredients:
2 cups rice milk or low fat milk  
1 cup uncooked rice  
2 eggs  
½ cup rice milk or low fat milk  
½ cup dried cherries or raisins (optional)  
1 tsp. vanilla (optional)  
½ tsp black pepper

Instructions:
In a saucepan, heat 2 cups of rice milk and rice. Bring to a boil and simmer, stirring occasionally. Cook uncovered until rice is tender, about 20 minutes.  

In a large bowl mix eggs, ½ cup milk, vanilla, and sweetened condensed milk. Spoon ⅛ cup of the rice mixture into the egg mixture. Keep stirring and adding rice mixture a small amount at a time. Pour mixture back into the sauce pan and bring to a boil, stirring continuously. Remove from heat and add dried fruit and/or cinnamon.
**Plato de Pasta Como a usted le gusta**

4 porciones

**Ingredientes:**
- 4 tazas pasta cocida (o 2 tazas seca)
- 2 latas frijoles escurridos y jugados (garbanzos, frijoles negros, rojos o blancos)
- 2-4 tazas vegetales en pedazos pequeños (enlatados, frescos o frizados)

**Aderezo:**
- 8 cucharadas de su aderezo favorito para ensaladas.
- 0
- 4 cucharadas aceite vegetal
- 1 cucharadas ajo en polvo
- 4 cucharadas jugo de limon o vinagre
- ½ cucharadita sal (opcional)
- ½ cucharadita pimienta negra

**Instrucciones:**
1. Combine todos los ingredientes en una vasija grande.
2. Revuelva hasta que los ingredientes estén bien incorporados.
3. Si el tiempo lo permite, coloque en el refrigerador por 30 minutos.

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**Pudín de Arroz**

4 porciones

**Ingredientes:**
- 2 tazas leche de arroz, o leche baja en grasa
- 1 taza arroz crudo
- huevos
- ½ taza leche de arroz o leche baja en grasa
- 1/3 taza leche condensada azucarada, o azucar
- 1 cucharadita vainilla (opcional)
- 1/8 cucharadita canela

**Instrucciones:**
En un cacerola, caliente 2 tazas de la leche de arroz y el arroz. Dejelo hasta que hierva y luego pongalo a hervir a fuego lento, revuelva ocasionalmente. Cocinelo sin taparlo hasta que el arroz este tierno, aproximadamente 20 minutos.

En un tazon grande mezcle los huevos, ½ taza de leche, vainilla, and leche condensada. Pase con una cuchara ¼ de taza de la mazcla del arroz dentro de la mezcla del huevo. Continue revolviendo y adiconando la mezclas de vuelta dentro de la cacerola y pongalo nuevamente a hervir revolviendo constantemente. Remueva del calor y adicione la fruta seca y/o la canela.