

Healthy Weight Awareness Campaign Background and References

November 2003

The Healthy Weight Awareness Campaign is a social marketing campaign developed by the Maine Department of Human Services, Bureau of Health in collaboration with the Maine Nutrition Network and CD&M Communications. The Campaign is designed to provide Maine parents with information and simple ways to keep their children and families healthy and active. This Campaign targets families with limited income and the general public is the secondary audience. The results of focus groups convened throughout the state were used to develop the Campaign messages.

The Campaign was launched in October 2002 as part of the ‘Enough is Enough’ Campaign. The Healthy Weight Awareness Campaign has been introduced in phases that present a simple aspect of improving nutrition and increasing physical activity. The components of the Campaign include limiting soda consumption (October 2002), reducing television and screen time (December 2002), incorporating physical activity into simple tasks around the home (May 2003), and promoting local walking routes (July 2003). A combination of television, newspaper, and radio messages was used, along with posters and a direct mail information packet.

This paper outlines recommendations and information from government documents and research articles, as well as results of the focus groups used to support the intent of the Healthy Weight Awareness Campaign.

In Maine, overweight and obesity are epidemic. In 2002, over half of Maine adults were considered overweight or obese, the highest rank in New England (1). Obesity among Maine adults has increased by 50% in the past decade, while the national rate for overweight among youth has more than doubled in the past twenty years (2,3). The continuing increase in overweight among children and adolescents is a major public health issue. Older children who are overweight are at greater risk of becoming overweight or obese adults. In adults, overweight and obesity are associated with increased risk for heart disease, diabetes, high blood pressure and stroke, high blood cholesterol, certain types of cancer, arthritis, and breathing problems (4,5).

“Overweight and obesity are caused by many factors. However, behavioral and environmental factors are large contributors to overweight and obesity and provide the greatest opportunity for actions and interventions designed for prevention and treatment. Approximately 300,000 deaths every year can be attributed to a combination of unhealthy dietary habits and sedentary behaviors. Thus, a healthy diet and regular physical activity, consistent with the *Dietary Guidelines for Americans*, should be promoted as the cornerstone of any prevention or treatment effort (6,7,8). Overweight and obesity and their associated health problems have substantial economic consequences for the U.S. health care system. In 2000, the total cost of

obesity was estimated to be \$117 billion (\$61 billion direct and \$56 billion indirect). Most of the cost associated with obesity is due to type 2 diabetes, coronary heart disease, and hypertension (9,10). The Healthy People 2010 Goals for the Nation include objectives that address decreasing overweight and obesity and increasing physical activity (11).”

Obesity can lead to death and disability from a number of chronic diseases. As many as 70 percent of the deaths in Maine each year are from four chronic diseases: cardiovascular disease, cancer, chronic lung disease and diabetes. Compared to other states, the CDC placed Maine as sixteenth in the nation for deaths from these diseases in 1999 (12). These same chronic diseases are responsible for nearly 30% of the hospitalizations in Maine. The burden of cardiovascular disease, diabetes and cancer amounts to \$2.28 billion in costs to the Maine health care system (13,14).

Overweight and obesity rates are tracked through data collected from the Maine Behavioral Risk Factor Surveillance System (BRFSS) for adults 18 and older, and the Maine Youth Risk Behavioral Surveillance System (YRBSS) for middle and high school students. In 2002, fifty-nine percent of Maine adults aged 18 and older reported being overweight or obese. One in five of Maine adults were considered obese, which means they are at least thirty pounds overweight. For Maine high school students in 2003, thirteen percent were considered overweight and fifteen percent were considered at-risk for overweight (15,16).

The Bureau of Health also conducts the Maine Child Health Survey (MCHS) in public schools at the kindergarten, third, and fifth grade levels every other year. Schools are randomly sampled within six geographic regions in Maine on a probability proportional to the enrollment in the school (17). The percentage of Maine children entering kindergarten in the fall of 2002 who were at risk of overweight (BMI for Age between 85%-94%) was 21%. The percentage of Maine children entering kindergarten in the fall of 2002 who were overweight (BMI for Age \geq 95%) was 15%.

In 2002, 26% of Maine adults reported no leisure time physical activity during the previous month (15). A lack of adequate regular physical activity is also a health concern among Maine’s adolescent population. The percentage of Maine high school students who attended one or more physical education classes per week decreased from 52% in 1995 to 41% in 2003. Ninety-two percent of Maine high school students do not attend daily physical education class. Participation in vigorous physical activities decreases with increasing grade level. In 2003, 25% of Maine high school students participated in moderate physical activity on five or more of the past seven days (16).

In 2003, Maine youth reported spending more time watching TV and playing on computers than being outdoors and physically active. Approximately 32% of Maine high school students watched three or more hours of television per day on an average school day. Sixty-four percent of high school students used a computer for fun or video games for at least one hour per day (16).

Government Sources of Recommendations and Information

The following government documents provide recommendations and information pertaining to nutrition, physical activity, overweight and obesity.

1) USDA Dietary Guidelines For Americans, 2000: (7)

The USDA Dietary Guidelines encourage people to aim for a healthy weight and to use the Food Guide Pyramid to guide food choices. Included in the narrative are the following observations and recommendations:

Overweight/Obesity

- "Aim for a healthy weight. If you are at a healthy weight, aim to avoid weight gain. If you are already overweight, first aim to prevent further weight gain, and then lose weight to improve your health." (p 9)

Soda Consumption

The USDA Dietary Guidelines encourage people to choose beverages and foods that moderate their intake of sugars.

- "In the United States, the number one source of added sugars is nondiet soft drinks (soda or pop). Sweets and candies, cakes and cookies, and fruit drinks and fruitades are also major sources of added sugars." (p 32)
- "Intake of a lot of foods high in added sugars, like soft drinks, is of concern. Consuming excess calories from these foods may contribute to weight gain or lower consumption of more nutritious foods." (p 32)
- People should limit their intake of commonly eaten foods that are high in added sugars. Drink water to quench thirst and offer it to children. (p 33)
- Take care not to let soft drinks or other sweets crowd out other foods necessary to maintain health, such as low-fat milk or other good sources of calcium. (p 33)

Portion Size

- Choose sensible portion sizes using the recommended number of daily servings and serving sizes from each of the five major food groups using The Food Guide Pyramid. (p 14-15)
- "Be especially careful to limit portion size of foods high in calories, such as cookies, cakes, other sweets, French fries, and fats, oils, and spreads." (p 8)

Physical Activity

- Be physically active each day. Aim to accumulate at least 30 minutes (adults) or 60 minutes (children) of moderate physical activity most days of the week, preferably daily. (p 10)

2) USDA Home and Garden Bulletin "How Much Are You Eating?": (18)

This USDA resource provides information on portion size and serving size.

"A portion is the amount of food you choose to eat. There is no standard portion size and no single right or wrong portion size." (p 2)

“A serving is a standard amount used to help give advice about how much to eat, or to identify how many calories and nutrients are in a food.” (p 2)

“The serving sizes listed on the *Nutrition Facts label* may be different from *Food Guide Pyramid* serving sizes. Many Pyramid serving sizes are smaller than those on the Nutrition Facts label.” (p 6)

Tips to help you choose sensible portions (p 5)

When eating out:

- Choose a “small” or “medium” portion. This includes main dishes, side dishes, and beverages as well. Remember that water is always a good option for quenching your thirst.
- If main dish portions are larger than you want, order an appetizer or side dish instead, or share a main dish with a friend.
- Resign from the “clean your plate club”—when you’ve eaten enough, leave the rest. If you can chill the extra food right away, take it home in a “doggie bag.”
- Ask for salad dressing to be served “on the side” so you can add only as much as you want.
- Order an item from the menu instead of the “all-you-can-eat” buffet.

At home:

- Once or twice, measure your typical portion of foods you eat often. Use standard measuring cups. This will help you estimate the portion size of these foods and similar foods.
- Be especially careful to limit portions of foods high in calories, such as cookies, cakes, other sweets, and fats, oils, and spreads.
- Try using a smaller plate for your meal.
- Put sensible portions on your plate at the beginning of the meal, and don’t take “seconds.”

3) National Institutes of Health, National Heart, Lung, and Blood Institute: (19)

The National Institutes of Health, National Heart, Lung, and Blood Institute educational pamphlet entitled, *Embrace Your Health! Lose Weight if You are Overweight*, includes strategies for the public. Some of the recommendations follow:

Soda Consumption

"Drink water instead of soft drinks with sugar" in order to lose weight or maintain a healthy weight. (p 8)

Portion Size

“Limit your portion size.” (p 5)

Physical Activity

“Be physically active for at least 30 minutes a day, or as much as you can.” (p 6)

4) USDA Continuing Food Survey: (20)

The Agricultural Research Service (ARS) of the U.S. Department of Agriculture conducted the *Continuing Survey of Food Intakes by Individuals* (CSFII 1994-96, 1998) and the *Diet and Health Knowledge Survey* (DHKS 1994-96). Information included in these surveys provides national probability estimates for foods and nutrients consumed as well as eating patterns of the American public from infancy through adulthood. Utilizing the information provided by Table Set 10, Table 9.7 and Table 10.7 of this survey, the amount of soft drinks consumed by teenage boys and girls in the United States is calculated as below:

- 12-19 year old boys who drink soft drinks consume 856 grams (608 grams total consumed divided by 71% consumers of soft drinks = 856 grams) per day of both diet and non-diet soft drinks. There are 30 grams in one ounce of liquid. 856 grams divided by 30 grams/ounce = 28.53 ounces consumed per day. The 28.53 ounces/day x 365 days/year = 10,413.5 ounces/year /12 ounce can = 868 cans per year of total soft drinks consumed by 12-19 year old boys who drink soft drinks.
- Of 12-19 year old boys, on any given day, 69% consume both diet and non-diet soft drinks, 66% consume non-diet soft drinks, and 5% consume diet soft drinks. Of 12-19 year old boys who drink soft drinks, 95% (66/69) consume non-diet soft drinks.
- 12-19 year old girls who drink soft drinks consume 619 grams (396 grams total consumed divided by 64% consumers of soft drinks = 619 grams) per day of both diet and non-diet soft drinks. There are 30 grams in one ounce of liquid. 619 grams divided by 30 grams/ounce = 20.62 ounces consumed per day. The 20.6 ounces/day x 365 days/year = 7,519 ounces/year/12 ounce can = 627 cans per year of total soft drinks consumed by 12-19 year old girls who drink soft drinks.
- Of 12-19 year old girls, on any given day, 62% consume both diet and non-diet soft drinks, 56% consume non-diet soft drinks, and 8% consume diet soft drinks. Of 12-19 year old girls who drink soft drinks, 90% (56/62) consume non-diet soft drinks.

5) Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity: (6)

The report outlines strategies that communities can use in helping to address health problems resulting from overweight and obesity.

Overweight/Obesity

Key actions to address overweight and obesity include communication, action, research and evaluation. Within this framework, effective actions must occur at multiple levels. "Obviously, individual behavioral change lies at the core of all strategies to reduce overweight and obesity. Successful efforts, however, must focus not only on individual behavioral change, but also on group influences, institutional and community influences, and public policy. Actions to reduce overweight and obesity will fail without this multidimensional approach. Individual behavioral change can occur only in a supportive environment with accessible and affordable healthy food choices and opportunities for regular physical activity." (p 1)

Portion Size

Two actions recommended for families and communities to address overweight and obesity are to “encourage the food industry to provide reasonable food and beverage portion sizes” and to “increase the availability of nutrition information for foods eaten and prepared away from home.” (p 16-17)

Two of the 15 activities identified as national priorities for immediate action include:

- 1) “Promote healthier food choices, including at least 5 servings of fruits and vegetables each day, and reasonable portion sizes at home, in schools, at worksites, and in communities.”
- 2) “Ensure that schools provide healthful foods and beverages on school campuses and at school events by:
 - a. Adopting policies specifying that all foods and beverages available at school contribute toward eating patterns that are consistent with the *Dietary Guidelines for Americans*.
 - b. Reducing access to foods high in fat, calories, and added sugars and to excessive portion sizes.” (p 34-35)

Physical Activity

An action recommended for families and communities to address overweight and obesity is to “create and implement public policy related to the provision of safe and accessible sidewalks, walking and bicycle paths, and stairs.” (p 18)

An action recommended for schools is to “encourage the use of school facilities for physical activity programs offered by the school and/or community-based organizations outside of school hours.” (p 20)

6) National Center for Health Statistics (4,5,21,22)

The National Center for Health Statistics provides information about America’s health.

Overweight/Obesity

During the past two decades, the percentage of children in the United States who are overweight has nearly doubled and the percentage of adolescents who are overweight has almost tripled. According to the Early Release of Selected Estimates Based on Data from January-March 2003 National Health Interview Survey, prevalence of obesity among adults aged 20 and older increased 22% from 19.4% in 1997 to 24% in 2003.

Data comparisons from the National Health and Nutrition Examination Survey III (NHANES, 1988-1994) with data from NHANES 1999-2000, indicate that the percent of overweight and obese adults (age 20 years and over) is continuing to increase nationally. The percentage of adults who are considered overweight or obese (BMI of 25.0 or higher) increased from 56 percent in 1988 to 64 percent in 1999-2000. Trends from the 1960’s to 2000 indicate that the percent of obese adults (BMI 30.0 or greater) increased considerably, with the largest increase occurring between 1980 and 1991 from 13 to 21 percent among men and from 17 to 26 percent among women. This trend continued in 1999-2000, with an increase in obesity of 28 percent of men and 34 percent of women. While obesity has been on the rise, the percentage of

adults with healthy weights has declined approximately 10 percent from 1960 to 1994 with an additional 8 percent decline from 1994 to 2000.

Data from the National Health and Nutrition Examination Survey (NHANES) 1999-2000 shows that the percentage of overweight children and adolescents increased over three decades from the 1960's to the 1990's:

- The percentage of overweight children (6-11 years of age) increased from 4 percent in 1965 to 15 percent in 2000.
- The percentage of overweight adolescents (12-19 years of age) increased from 5 percent in 1970 to 15 percent in 2000.
- The increase was similar among boys and girls.

7) Nutrition Insights published by the U.S. Department of Agriculture, Center for Nutrition Policy and Promotion, "Profile of Overweight Children: (23)

Data from the Third National Health and Nutrition Examination Survey (NHANES III) was analyzed to help profile overweight children.

- "Overweight children (high Body Mass Index [BMI]) are at risk of serious health, economic, and quality of life consequences. For example, adults with high BMIs are overweight and have been found to be at increased risk of adult onset diabetes, hypertension, stroke, and other diseases. Thus, it is important to identify those most likely to have high BMIs and take steps to both maintain weight and prevent the onset of obesity." (p 1)
- "It was found that children most likely to have a high BMI would share some or many of the following characteristics: Either parent or both parents are overweight or obese; the children live in smaller families or are poor; they consume a high proportion of calories from fat; and they are avid TV watchers." (p 2)

8) Chronic Disease Notes and Reports, 2000 (24)

Highlighting the complex nature of obesity prevention, this report states that:

"The goals of obesity prevention and control are twofold: prevention of weight gain for the entire population and weight loss for those who are overweight. These goals represent a critical public health challenge. The first goal, which involves preventing weight gain among the nonobese, the weight gain that accompanies aging, and further weight gain among the already obese, will arrest the progression of the epidemic and the development of the illnesses associated with obesity. The obesity epidemic developed concurrently with changes in the food supply, such as increased consumption of fast food and soft drinks, extraordinary serving sizes, and the surfeit of food products. Therefore, strategies to change food consumption include promoting fruit and vegetable consumption, substituting water for juice and soft drinks, and reducing our reliance on high calorie fast foods. Because a variety of indicators suggest that physical activity declined over the same time period, sedentary behavior is also a contributing factor to the increase in obesity.

Increased physical activity offers an important strategy for weight control. Therefore, environmental changes to promote physical activity are essential: we must restore physical education in schools, develop and promote worksite-based physical activity programs, and adopt alternatives to car use in communities." (p 2)

9) Physical Activity and Health: A Report of the Surgeon General (25)

The Surgeon General's Report states that:

"All Americans should engage in regular physical activity at a level appropriate to their capacities, needs, and interests. All children and adults should set and reach a goal of accumulating at least 30 minutes of moderate-intensity physical activity on most, if not all, days of the week. Those who currently meet these standards may derive additional health and fitness benefits by becoming more physically active or including more vigorous activity." (p 47)

10) Promoting Better Health for Young People Through Physical Activity and Sports (26)

This report highlights the need to make communities more "walkable":

"Nearly 25% of the trips made from home in our nation cover a distance less than one mile, but 75% of those trips are made by automobile. A small increase in the percentage of trips that are walked rather than driven could result in significant public health benefits. Research has found that people walk more when they live in communities that have greater housing and population density and more street connectivity (i.e., streets lead to other streets and stores, rather than just ending in cul-de-sacs). Research also shows that people are more active in neighborhoods that are perceived as safe and that have recreational facilities nearby." (p 26)

11) National Blueprint Increasing Physical Activity Among Adults Age 50 and Older (27)

A Guide to plan strategies to help older people increase their physical activity states that:

"scientific evidence increasingly indicates that physical activity can extend years of active independent life, reduce disability, and improve the quality of life for older persons." (p 5)

12) U.S. Department of Health and Human Services and The Centers For Disease Control and Prevention Advanced Data Report: (28)

This report presents selected estimates for overall physical activity among U.S. adults.

- About one in five American adults engage in a high level of overall physical activity, including both activity during work and leisure time. At the other end of the spectrum, about one in four American adults engage in little or no regular physical activity.
- "Adults who walked during their usual daily activity (36.6%) were more likely than adults who sat during their usual daily activity (27.7%) to engage in regular leisure-time physical activity. (p 1)

13) Nutrition Insights published by the U.S. Department of Agriculture, Center for Nutrition Policy and Promotion, “Serving Sizes in the Food Guide Pyramid and on the Nutrition Facts Label: What’s Different and Why?”: (29)

This publication states that:

“Serving sizes for a particular food are not necessarily the same *between* the Food Guide Pyramid and the Nutrition Facts label.” (p 1)

“The usefulness of both tools would be enhanced and confusion lessened if food product labels included a statement of the number of Pyramid servings contained in one label serving.” (p 2)

14) USDA Agriculture Information Bulletin No. 749 “Away-From-Home Foods Increasingly Important to Quality of American Diet”: (30)

This report provides information regarding foods eaten away from home in the U.S.:

“Since the trend of eating out frequently is expected to continue, strategies to improve the American diet must address consumers’ food choices when eating out.” (p 20)

15) USDA Statistical Bulletin No. 965 “Food Consumption, Prices, and Expenditures, 1970-97”: (31)

This report summarizes data on food consumption, prices, expenditures, and U.S. income and population.

“Away-from-home meals and snacks captured 45 percent of the U.S. food dollar in 1997, up from 39 percent in 1980 and 34 percent in 1970.” (p 14)

“Evidence from various sources suggests that Americans now consume, on average, more total food, more snacks, bigger portions of food, and more calories than they did 29 years ago.” (p ix)

Excerpts from Recent Research

The following recent research is from peer-reviewed scientific journals.

Overweight/Obesity

In a 2003 article by Calle et al. published in the New England Journal of Medicine: (32)

- 900,000 cancer-free U.S. adults were followed for 16 years, and the authors concluded that an increased body weight was associated with increased death rates for all cancers combined and for cancers at multiple specific sites. Significant trends of increasing risk with higher body-mass-index values were observed for death from cancers of the stomach and prostate in men and for death from cancers of the breast, uterus, cervix, and ovary in women. (p 1625)

In an article in Pediatrics in May 2002, written by Wang and Dietz: (33)

- Obesity in children and adolescents is associated with chronic diseases such as diabetes, asthma, sleep apnea, and gallbladder disease. In the United States over the past twenty years, increases in the percentage of hospital discharges were found for the following obesity related illnesses: sleep apnea, 436%; gallbladder disease, 228%; and obesity, 197%. During this same period of time, obesity-associated annual hospital costs for youth aged 6 to 17 years have increased more than threefold, from \$35 million in 1979-1981 to \$127 million in 1997-1999. (p 1)

A 2002 Journal of the American Medical Association article reports: (34)

- "Between 1984 and 1997, there was more than a 15% increase in the average daily calorie intake per person in the United States." "At the same time that calorie consumption has increased, daily physical activity among Americans has decreased for several reasons, including increased reliance on motor vehicles, sedentary occupations, and the proliferation of television and computer technology." (p 2178)

In a 2002 article by Dwyer et al. published in the Journal of Adolescent Health: (35)

5,000 nine-year olds were followed for three years, and the authors concluded that:

- "Population-based anticipatory guidance about weight should focus on all children in mid-childhood, not only those at the upper extremes of weight. Those who are genetically lean should be encouraged to remain so. Maintenance or achievement of lightweight was associated with favorable changes in systolic blood pressure in CATCH children during early adolescence." (p 117)

In a 2001 article in Journal of the American Medical Association: (36)

- "Overall, the direct costs of obesity and physical inactivity account for approximately 9.4% of U.S. health care expenditures." (p 1195)

In a study conducted from 1973 to 1994 among 5 to 17 year olds by Freedman et al. published in June 1999 Pediatrics: (37)

- Fifty-eight percent of the overweight children (even as young as 5 years of age), were found to have at least one additional risk factor for cardiovascular disease, and twenty percent were found to have two or more risk factors; including: high blood pressure, high blood cholesterol, and Type 2 diabetes. (p 1175)

In a 1999 article about public health policy published in the Journal of the American Medical Association: (38)

- Modest weight losses of 5% to 10% of body weight improve glucose tolerance, high blood cholesterol levels, and blood pressure in obese adults. (p 1579)

Soda Consumption

In a September 2002 American Journal of Public Health research and practice article: (39)

- For children in grades 4 through 6, sweetened beverages comprised 51% of the average daily intake of total beverages consumed. (p 1476)
- Children with the highest consumption of total sweetened beverages consumed more calories (about 330 extra per day) than those who did not drink sweetened beverages. Those children drinking the highest amounts of sweetened beverages also consumed more high-fat vegetables such as French fries, and 57-62 % less fruits. Children whose parents had lower educational attainment had higher consumption of soft drinks and sweetened beverages. (p 1477)

Findings from an article in The Lancet in February 2001 show: (40)

- In children starting at age 11 years, for each additional serving of sugar-sweetened drink consumed, both body mass index and frequency of obesity increased. (p 505)
- The likelihood of becoming obese among children increased 1.6 times for each additional can or glass of sugar-sweetened drink that they consumed daily. (p 507)

In a 2001 article in Journal of Dental Research, oral health is highlighted: (41)

- Persons who consumed sugared soda three or more times daily had 17-62% higher dental caries than those who consumed no sugared soda. (p 1951)

In a January 2000 article in the Journal of The American Dietetic Association: (42)

- Since 1990, on average, Americans have increased their energy intake. This increase came primarily from increased carbohydrate consumption. Much of the increased energy intake by children and adolescents has been attributed to increased consumption of non-diet soft drinks. According to data from the 1994-96 CSFII, the most important source of added sugars is non-diet soft drinks: they account for one third of added sugar intakes. (p 43)

A 1999 Journal of The American Dietetic Association article written by Harnack et al. states: (43)

- Children who drink soft drinks consume more total calories than those who do not consume soft drinks. Those children in the highest soft drink consumption category consumed less milk and fruit juice compared with those in the lowest category (non-consumers). (p 436)
- Nutrition education messages targeted to children and/or their parents should encourage limited consumption of soft drinks. Policies that limit children's access to soft drinks at day care centers and schools should be promoted. (p 436)

In a 1998 position paper, *Use of Nutritive and Nonnutritive Sweeteners*, the American Dietetic Association reinforces the use of the Dietary Guidelines for Americans: (44)

- "It is the position of the American Dietetic Association that consumers can safely enjoy a range of nutritive and non-nutritive sweeteners when consumed in moderation and within the context of a diet consistent with the Dietary Guidelines for Americans." (p 580)
- "The U.S. Food Guide Pyramid encourages consumers to have the smallest proportion of their energy derived from fats, oils, and sugars. The Dietary Guidelines for Americans urge consumers to choose a diet moderate in these sources of energy because excessive intake may provide the body with unnecessary energy and few nutrients." (p 582)

Portion Size

In a 2003 Nutrition Today article: (45)

- "Some of the changes in the eating environment that encourage overeating are the increasing availability of inexpensive high-calorie foods, the variety of palatable foods, the increasing frequency of meals consumed outside of the home, and the rise in portion sizes." (p 42)
- "As portions have grown, they have become more dissociated from recommended serving sizes such as those in the Food Guide Pyramid and on food labels." (p 42)
- "People eat in units. That is, if they are offered a food that comes in a pre-portioned unit, such as a cookie, most people will eat the whole cookie. (p 43)
- "Food cues, such as portion size and ready availability, override physiologic satiety cues. Many consumers are eating what is served, whether or not it is appropriate for their energy needs. In some individuals there is a tendency to eat all the food put in front of them, or to 'clean the plate'. Whether or not we need food, when it is put in front of us, we eat. Many of us eat all of it." (p 47)
- "Restaurants have found that customers appreciate good value, and this translates into large portions at a low price. Thus the practice of "supersizing," (giving customers a lot more food and calories for only a small additional cost) is widespread, particularly in fast-food establishments." (p 46)
- "Ultimately, solutions depend upon consumers understanding and accepting the value to their health of eating reasonable portions." (p 50)

A 2003 Journal of the American Medical Association article by Nielsen et al. states: (46)

- "This study provides evidence to support the general consensus that there is a marked trend toward larger portion sizes in the United States. Between 1977 and 1996, both inside and outside the home, portion sizes increased for salty snacks, desserts, soft drinks, fruit drinks, French fries, hamburgers, cheeseburgers, and Mexican food. Pizza portions in general decreased during this period. The size of the increases are substantial." (p 452)

In a 2003 article published in the Journal of the American Dietetic Association: (47)

- "Many Americans believe that the kind of food they eat is more important than its quantity. Nutritionists counseling clients—and the public—about healthy eating and weight loss strategies should make every effort to emphasize the relationship between portion sizes, energy intake, and weight management. Even though it may seem intuitively obvious, we cannot overemphasize the point that larger portions contain more calories." (p 234)

A 2003 Journal of the American Dietetic Association article states: (48)

- “One result of our overabundant (and, therefore, overmarketed) food supply is an increase in the amounts of food sold and consumed at any one time. Larger portions have more calories, and people tend to eat more when confronted with large amounts of food.” (p 39)
- “Most people seem to view a soft drink as a soft drink, no matter how big it is. When I explain that a 64-ounce soft drink container could provide as much as 800 kcal, audiences gasp. If we want to reverse the obesity epidemic, we must get this point across—perhaps, as suggested by the Center for Science in the Public Interest, by demanding visible calorie labeling in restaurants and fast food establishments, and other policies that address the environment of food choice.” (p 40)
- “Researchers often use the nationwide data as default values for portion sizes when amounts are unknown or are not reported by respondents. By this, they mean that researchers can fail to recognize that the amounts people consume can be larger— sometimes much larger—than the portion sizes indicated on food labels, dietary guidance materials, or food frequency questionnaires. Dietitians must be wary not to make the same mistake. When a client reports consuming a soft drink, cookie, French fries, or a glass of wine with dinner, an assumption that its calorie contribution is that of a standard portion is likely to be wrong. *Larger portions mean more calories*. Overlooking this critical concept will almost certainly contribute to underestimating caloric intake, and will confuse people about what they need to do to lose weight: eat less (and, of course, move more).” (p 40)

In a 2003 article published in the Journal of the American Dietetic Association: (49)

- “The findings in this study indicate that portion sizes have changed in recent years for many commonly eaten foods. Some of the changes can adversely affect nutritional well-being and public health of Americans. Some of the changes reflect a marketplace that promotes larger portions. The challenge to dietitians and other healthcare providers is to counsel on the importance of decreasing portions and recognition of appropriate portion sizes.” (p 46)

In a February 2002 American Journal of Public Health research and practice article by Young and Nestle: (50)

- “Marketplace food portions have increased in size and now exceed federal standards. Portion sizes began to grow in the 1970s, rose sharply in the 1980s, and have continued in parallel with increasing body weights.” (p 246)
- “Many restaurant owners report that customers want more food for their money, and consumers increasingly choose restaurants on the basis of the sizes of food portions.” (p 247)
- “Large portions often seem like a bargain: 7-Eleven’s 16-oz Gulp costs just under 5 cents/oz, but a 32-oz Big Gulp is 2.7 cents/oz. Obviously, larger portions provide more calories. A 2.1-oz Butterfingers candy bar contains 270 kcal, whereas the 5.0-oz “Beast” supplies 680 kcal. The 7-Eleven Double Gulp, a 64-oz soda, contains nearly 800 kcal—an amount 10 times the size of a Coca-Cola when it was introduced and calorically equivalent to more than one third of the energy requirement of large segments of the population. Increased consumption of fast foods contributes to increased caloric intake; this problem could well be made worse by the ‘supersizing’ of menu items.” (p 247-8)

In a 2001 review in the Journal of the American College of Nutrition: (51)

- “A comparison of food service portion sizes from 1957 to 1997 is particularly striking. The typical fast-food outlet hamburger in 1957 contained a little more than one ounce of cooked meat, compared to a burger weighing up to six ounces in 1997. The average soda was eight ounces in 1957, compared with 32 to 64 ounces in 1997. The average theatre serving of popcorn consisted of three cups in 1957, compared with 16 cups (“medium size”) in 1997. Larger portion sizes could be contributing to the increasing prevalence of overweight among children and young adults.” (p 603)

A 2000 Public Health Reports article by Nestle and Jacobson states: (52)

- The standard serving sizes of soda has increased over the years; in the 1950's, Coca Cola was packaged in 6.5 ounce bottles, single serving containers expanded to 12 ounces, and more recently, 20 ounce containers. (p 19)

In a February 2000 article in The Journal of the American Dietetic Association: (53)

- “For children who have learned to be responsive to environmental cues, very large portion sizes may elicit overeating and, thus, promote weight gain.” (p 232)

A Food Review article published by the United States Department of Agriculture, Economic Research Service in 2000 stated: (54)

- “in 1999, away-from-home spending reached a record 47.5 percent of total food expenditures.” (p 15)

A Food Review article published by the United States Department of Agriculture, Economic Research Service in 2000 stated: (55)

- Food supply data suggest that between 1984 and 1997, there was a 15 percent increase in the average daily calorie intake per person in the United States. Nearly 90 percent of that 15 percent increase in average daily calorie intake was due to higher consumption of refined grains (42 percent), added sugars (23 percent), and added fats (23 percent). (p 14)

In a 1998 article in the journal Science: (56)

- Compounding the availability of highly palatable, inexpensive foods in the current environment that promotes obesity, is the growing trend in the United States toward larger portions. “This is especially evident in so-called fast food restaurants, where “super sizing” of menu items is commonplace.” (p 1371)

Physical Activity

A 2003 American Journal of Preventive Medicine article by Kirtland et al. states: (57)

- “Those meeting national physical activity guidelines or reporting some physical activity demonstrated greatest agreement with access to recreation facilities, while those not meeting the guidelines demonstrated greater agreement with safety of recreation facilities.” (p 323)

Physical Activity for Children: A Statement of Guidelines published by the National Association for Sport and Physical Education (1998) states that: (58)

- "Elementary school children should accumulate at least 30 to 60 minutes of age and developmentally appropriate physical activity on all, or most days of the week." An accumulation of more than 60 minutes, and up to several hours per day, of age and developmentally appropriate activities is encouraged for elementary school children. Extended periods of inactivity are discouraged for children." (p 8)

A 1998 Archives of Family Medicine article by Jones et al. states: (59)

- "A larger proportion of men, whites, and more highly educated and younger adults are meeting the physical activity recommendations than women, ethnic minorities, and less-educated and older adults." (p 288-289)

A 1997 Journal of School Health article by Symons et al. states: (60)

- "School-based physical activity programs have positive effects on academic achievement, including increased concentration; improved mathematics, reading, and writing scores; and reduced disruptive behavior." (p 224)

Lifestyle Physical Activity

A 1999 Journal of the American Medical Association article by Dunn et al. states: (61)

- "This is to our knowledge, the first demonstration that a lifestyle approach to increasing physical activity in previously sedentary healthy adults is as effective over 24 months as more traditional structured exercise approaches. Our results show that sedentary but otherwise healthy individuals can make significant improvements in physical activity, cardiorespiratory fitness, and CVD risk factors without having to go to a fitness center and perform high-intensity workouts." (p 333)

A 1999 Journal of the American Medical Association article by Anderson et al. concludes that: (62)

- For sedentary overweight women, a diet combined with a lifestyle program of gradual and moderate-intensity physical activity, such as using stairs instead of elevators and walking instead of driving short distances, can facilitate weight loss and enhance weight management and improve CVD risk profiles. A program of diet plus lifestyle activity may offer similar health benefits and be a suitable alternative to diet plus structured aerobic activity for obese women. (p 339)

Walking/Environment

A 2003 Article by Catlin et al. published in the American Journal of Health Promotion states that: (63)

- “The absence of public outdoor exercise facilities (e.g., walking/running tracks, basketball/tennis courts, and swimming pools) was significantly associated with overweight.” (p 254)

A 2002 article by Craig et al. published in the American Journal of Preventive Medicine states that: (64)

- “The positive association between environment score (based on neighborhood characteristics such as visual aesthetics and traffic) and walking to work, controlling for degree of urbanization, supports the current movement toward the development of integrated communities for housing, shops, workplaces, schools and public spaces.” (p 36)

A 2001 article by Brownson et al. published in the American Journal of Public Health states: (65)

- “Access to parks, indoor gyms, and treadmills was positively associated with physical activity. Neighborhood characteristics, including the presence of sidewalks, enjoyable scenery, heavy traffic, and hills were positively associated with physical activity. Several social factors were also associated with physical activity, including surroundings in which many people were exercising, friends who encouraged exercise, and having at least 1 friend with whom to exercise.” (p 1999)

A 2000 article by Brownson et al. published in the American Journal of Preventive Medicine states that: (66)

- "Walking trails may be beneficial in promoting physical activity among segments of the population at highest risk for inactivity, in particular women and persons in lower socioeconomic groups." (p 235)
- “Among people who used the trails, 55.2% reported they had increased their amount of walking since they began using the trails. Women and persons with a high school education or less were more than twice as likely to have increased the amount of walking since they began using the walking trails.” (p 235)

As stated in a 1999 editorial in the Journal of the American Medical Association written by Koplan and Dietz: (38)

- "Automobile trips that can be safely replaced by walking or bicycling offer the first target for increased physical activity in communities. Recent data indicate that approximately 25% of all trips are less than one mile, and 75% of these are by car." (p 1580)

Television/Screen Time

Findings from a 2001 article in the Archives of Pediatrics and Adolescent Medicine by Crespo et al. show: (67)

- The prevalence of obesity was lowest among children watching 1 or fewer hours of television per day
- The prevalence of obesity was highest among children watching 4 or more hours of television a day.
- Television watching was positively associated with obesity among girls, even after controlling for age, race/ethnicity, family income, weekly physical activity, and energy intake. (p 365)

The Kaiser Family Foundation research on Kids and Media in 1999 shows that: (68)

- Nationally, children ages 2 to 18 years, spend an average of over 4 hours per day watching television, videotapes, playing video games, or using a computer. (p 3) Most of this time -2 3/4 hours is spent watching television. About 17% of children watch more than 5 hours of television per day. (p 9)

A 1999 Journal of the American Medical Association article by Robinson et al: (69)

- "This is the first experimental study to demonstrate the direct association between television, videotape, and video game use and increased adiposity. Because the intervention targeted reduction of media use alone, without substituting alternate behaviors, a causal inference might be made." Decreases could be seen in adiposity as measured by triceps skinfold thickness, waist circumference, and body mass index. (p 1565)

A 1999 article in the Archives of Pediatrics and Adolescent Medicine by Gortmaker et al. shows: (70)

- Among girls each hour of reduction in television viewing predicted reduced obesity prevalence.
- "The lack of an intervention effect among boys suggests that different causal factors may operate among boys and girls, although there is little published scientific evidence to support this hypothesis. Alternately, girls could be more attuned to issues of diet and activity and thus more responsive to the intervention." (p 415)

A 1996 article in the Archives of Pediatrics and Adolescent Medicine by Gortmaker et al. shows: (71)

- The odds of being overweight was 4.6 times greater for youth watching more than 5 hours of television per day as compared to those watching 0 to 2 hours.
- After adjusting for previous overweight, socioeconomic status, household structure and ethnicity, results were similar.
- Estimates of attributable risk indicate that more than 60% of overweight incidence in this population can be linked to excess television viewing time. (p 362)

Focus Groups for the Healthy Weight Awareness Campaign

Adult Focus Groups, 2002

Critical Insights of Portland conducted focus groups for the Healthy Weight Awareness Campaign in collaboration with CD&M Communications. Focus groups provide critical qualitative data for the development of any social marketing campaign. During August and September 2002, six groups consisting of 59 participants were conducted targeting parents of children under the age of 18. Four groups were conducted among parents whose total household income fell within the federal poverty guidelines, and the remaining groups were conducted with parents from more moderate-income households.

Participants were professionally recruited using random digit dial by interviewers in the Critical Insights Information Center. Potential participants were further screened to exclude respondents who had recent previous focus group experience, as well as anyone with any close affiliations with advertising, market research or the media.

The purpose of the focus groups was to determine barriers among adults to eating healthier and being more physically active. During the course of the approximately two-hour discussion sessions, participants in each group were asked to discuss their perceptions of physical activity and nutrition recommendations, the feasibility of adhering to the recommended guidelines, and the personal obstacles they encountered in attempts to comply.

In addition, respondents were asked to discuss in detail what they perceived to be the benefits of engaging in more physical activity and making better nutritional choices. Participants were specifically asked to describe their soda and fast food consumption.

The following results are from the focus groups with adults:

- Soda is consumed by the majority of respondents in fairly large quantities, with many providing a caveat that they are drinking diet soda or mixing it with juice, implying it is a healthier choice. Several lower-income participants noted that they drink at least two liters of soda per day.
- Even more moderate-income respondents indicate drinking quite a bit of soda, with the exception of a few parents who forbid it in the household. Often times, soda is rationalized as a choice based solely on convenience when driving or purchasing a beverage from a vending machine. Some respondents see the predominance of soda in supermarkets and convenience stores as leading to increased consumption. Similarly, ease of access and habit tend to drive the consumption, with some respondents noting that it provided a bit of a break, or relief, for them.
- Nearly all participants noted that while they themselves might drink soda, they make conscious efforts to limit the amount of soda that their children consume, preferring to have them drink juice. Efforts to limit soda intake for younger schoolchildren are seen as difficult for parents in that they feel that they cannot control what their children, primarily teens with their own money, consume once they leave the house.

- The universal reaction among all participants was that they had no idea about the amount of sugar contained in regular soda or the level of consumption by teens. More importantly, there seemed to be a universal indignation that the State had not informed them of these facts sooner and that people in the focus groups seemed to be "hungry" for more information. People used words like, "what took them so long?" or "It's about time." Participants also thought that we needed to graphically depict the actual amount of sugar in a 12-ounce can of soda, either by showing it being poured into the container or by some other means.
- Soda is also a major problem in terms of consumption for the lower-income population, many of who have developed high consumption habits and whose children are following suit and also consuming vast amounts of soda. Communications stressing the benefits of water and high-quality/no sugar added juices might begin to raise awareness of other options. However, water and juice are seen as less desirable by some children. Parents did exhibit notable reactions to the concept of excessive soda drinking by their children when they cannot monitor their consumption, and might be more amenable to these messages if they felt that drinking water and juice could be made more appealing. More moderate-income parents were more likely to articulate steps to intervene in the soda-consumption of their children, albeit with the caveat that "you do what you can." The ready availability of soda, both in schools and recreational centers, is problematic in terms of limiting access according to these parents.
- The single most important benefit of increased physical activity for most participants was "the way it made you feel" which translated to increased capability and empowerment. The sentiment that physical activity is something that they needed to do "for themselves" was expressed by many.
- The vast majority of physical activity mentioned by participants involved being outdoors. This is a significant association, since weather is a frequently mentioned factor inhibiting the pursuit of increased physical activity.
- The number one barrier to increased physical activity was cited as "time." Other barriers differed by location and included: personal safety (wild animals or criminal activity cited), weather, cost of gym memberships, and childcare issues.
- Eight-in-ten of these participants had not engaged in any sustained periods of physical activity or exercise within the past twelve months. However, it is important to note that, with one or two exceptions, they voice a strong desire to be more physically active, as they equate physical activity with enhanced self-esteem, a better appearance, and better general health.
- Most participants were aware of healthy food choices; describing a healthy diet as being low in fat and sugar, and including plentiful fresh fruits and vegetables. Benefits to healthy eating involved weight control and appearance.
- The major barrier cited to a more healthful diet by most low-income participants included the high cost associated with fresh produce, and the short shelf life of fresh produce.

- Fast food consumption patterns ranged from once a week to several times a month. For parents of children involved in team sports, frequency of fast food increased dramatically during sports season.
- Fast food appears to be a frequent staple for the majority of lower-income respondents, due in large part to the perception that it is easier to feed a family with limited resources, and the fact that it is considered to be more convenient.

Youth Focus Groups, 2002

Two additional focus groups were held in October 2002 with youth in Calais and Houlton. The results from these youth focus groups seem to mirror the results from the adult focus groups.

- Some kids report no soda consumption, while the majority report weekly consumption. Some individuals reported drinking as much as 5 cans a day. Others report drinking as much as two 20 ounce bottles per day.
- Respondents indicated that they are most likely to eat at fast food restaurants when the family is pressed for time.
- When asked what would be the first and/or easiest thing they personally could do to positively impact their health, a majority of participants reported increasing their exercise.
- Participants demonstrated a general awareness that in order to improve their health, they would simply need to exercise (e.g. take a walk or run) and eat in a healthy manner (e.g., fruits and vegetables). However, exercising was seen as a substantially easier lifestyle change in comparison to altering their diet or eliminating certain foods/beverages.

Adult Focus Groups, 2003

In the summer of 2003, a qualitative research effort was undertaken to explore prevailing attitudes and perceptions among low-income families and families in rural areas of Maine with regard to exercise and diet. While cognizant of the challenges faced by these populations, the research was vital to obtaining a detailed understanding of the obstacles that may prove to be inhibiting factors in the ability to pursue a healthier lifestyle; and the salience of the benefits of healthier choices concerning improved nutrition and increased physical activity.

To address these issues, a series of four focus groups were convened in August with 33 residents in the Machias and Fort Kent areas. It should be noted that although focus groups are powerful indices of consumer sentiment, the results of these qualitative inquiries do not have statistical significance. The results should be viewed as leading to directional rather than statistically valid conclusions and are meant only to aid in strategic and marketing guidance.

Participants in the research were recruited for participation via telephone and screened to meet specific criteria using scripts and questionnaires developed collaboratively by Critical

Insights and CD&M Communications. Eligible participants were required to meet the following criteria for inclusion in the groups: be age 18 to 64, with less than a 4-year college education and with children age 17 or younger living at home; earn less than \$20,000 per year in total household income. Potential participants were further screened to exclude respondents who had recent previous focus group experience, as well as anyone with any close affiliations with advertising, market research or the media. Those meeting the above criteria were also screened for articulation and asked to participate in a pre-scheduled research session.

The following results represent the thematic issues:

- Respondents perceive obesity to be an epidemic, which is equally attributable to poor diet and lack of exercise. Participants feel that Americans' "on the go" schedules leave them prone to eating quick, unhealthy meals at fast food restaurants and snacking throughout the day. Lack of exercise is perceived to be a result of busy schedules and the "couch potato" mentality.
- Whether it's eating a "family style" dinner at the table, eating out at a restaurant, or snacking, participants typically allow family members to serve themselves as much food as they want. Few respondents know that the appropriate portion size is roughly equivalent to a deck of cards. In addition, food preparation typically entails cooking more than would be required for a single sitting.
- Respondents reward their children with food. For example, children get rewarded with McDonald's for good behavior, good report cards or other achievements. Other respondents will give their children dessert as a reward for "cleaning their plates."
- Respondents consider going out to eat to be a special occasion. As one respondent indicated, "*Going out to eat is a special event, like renting a movie.*" For this reason, they do not consciously choose healthy items from restaurant menus – they order whatever they want and typically eat until they are full. Most respondents patronize Mom and Pop style restaurants. Respondents generally go out to eat about twice a month.
- When dining at a restaurant, respondents are highly unlikely to ask for their entrée to be divided. Their perspective of the experience of going out to eat is that it is a special "treat", and they relish the opportunity to eat as much as they want, in order to "get their money's worth."
- Participants are reluctant to enforce healthy eating habits among their children. They often make whatever their child wants for dinner, like hot dogs and macaroni and cheese. When dining out, parents do not encourage healthy choices such as milk instead of soda or eliminating mayonnaise.
- Respondents allow their children to snack up to three times a day. Similarly, there is a lack of discernment in terms of what constitutes healthy snacks. Frequently cited snacks were soda, chips, candy, ice cream muffins, bagels, fruit rollups and "cotton-candy" yogurt.

- All of the children of these respondents are eligible for Free school lunch and breakfast programs, and thus parents assume that they are eating healthful meals at least twice a day. They are therefore less stringent in their demand that their children consume a healthy dinner as well, preferring to get something that the child will eat without a fuss.

Healthy Maine Bullet Poll - November 2002

To gauge awareness of a recent Healthy Maine Partnerships media education campaign, an evaluative research effort was conducted on behalf of Healthy Maine Partnerships and their communications partner, CD&M Communications.

A total of 303 interviews were conducted with randomly selected adult residents of Maine. In order to qualify for inclusion in the sample, respondents were required to be parents and have a child living in their household between the ages of 2 and 17. Additionally, standard industry screening criteria to eliminate persons working in market research and advertising were included.

The total sample of 303 residents has a margin of error of ± 4.8 percentage points at the 95% confidence level. This means that if the entire survey were to be replicated repeatedly, in nine times out of ten an observed percentage would fall within a range of plus or minus 4.8 percentage points. Using a higher confidence level of 95%, the error range is ± 5.7 percentage points for the sample of 303. This is a statistically reliable sample, similar to most national polls reported regularly in the media.

The survey instrument was developed and refined in conjunction with CD&M Communications. The average length of the survey was seven minutes. Standard analysis for non-response error in the interviewing protocol yielded an 8.5% refusal rate. The survey was administered between November 22nd and 24th, 2002. Survey respondents were selected using a random digit dial (RDD) technique. Multiple attempts (up to five callbacks) were made to reach a household member before replacing the sample unit. These attempts were made at different times of day and early evening over a three-day period in order to maintain the integrity of the randomly drawn sample. For quality control, 15% of all interviews were verified with callbacks within 24 hours of the actual interview.

Findings – Unaided Awareness

To begin, parents were asked to think about advertising for health and wellness issues and to indicate the specific health and wellness issues for which they had recently seen or heard messages. On an unaided basis, close to one-third of parents surveyed (31%) report having seen advertising messages concerning soda consumption by youth. Unaided playback of this theme is nearly twice that of the next most commonly mentioned message, cigarettes/tobacco use (18%). Unprompted playback for campaign efforts addressing the amount of television watched by young people was more limited at 2% of parents surveyed.

Findings - Aided/Total Awareness

Those parents who did not report having seen campaign messages were then asked – on a prompted basis – if they had seen recent advertising efforts addressing these themes on TV/radio or in print media. Following are the results addressing each of the campaign themes.

- Total awareness of advertising about soda consumption by young people sums to 70% of parents surveyed.
- Total awareness of advertising about the amount of time spent by young people watching TV sums to 67% of parents surveyed.
- Total awareness of messages about time spent in front of a computer screen, physical activity or maintaining a healthy lifestyle sums to 42% of parents surveyed.
- Total awareness of advertising about the benefits of physical activity sums to 76% of parents surveyed.
- Total awareness of advertising about maintaining a healthy lifestyle sums to nearly eight in-ten (78%) parents surveyed.

Attitude Change

Parents were also asked to indicate the degree to which they think about a series of health-related issues. A five-point scale ranging from “never” to “frequently” was employed. When asked how often they think about limiting their child’s soda consumption, half of parents surveyed (52%) claim to think about it frequently.

A similar proportion of parents (49%) claim they frequently think about limiting their child’s TV time. Just one-third of parents (31%) indicate that they frequently think about limiting the amount of time their child spends at the computer. Conversely, fully four-in-ten (44%) claim they think about this issue infrequently.

The vast majority of parents (87%) claim they frequently think about ensuring that their child maintains a healthy diet. Close to three-quarters of parents surveyed (71%) claim they frequently think about making sure their child engages in regular physical activity.

Definitions and Information

This section includes the definition of several key terms relevant to this media campaign.

Overweight/Obesity:

- Body Mass Index (BMI) is a practical measure of weight in relation to height that requires only two things: accurate measures of an individual's height and weight. BMI is calculated as weight in kilograms divided by the square of the height in meters (6, p 4).
- "Obesity is defined as an excessively high amount of body fat or adipose tissue in relation to lean body mass." (72; 73, p 2)
- Adults with a BMI between 25 kg/m² and 29.9 kg/m² are considered overweight. Adults with a BMI of 30 kg/m² or greater are considered obese. (74, p 1)
- In children and adolescents, overweight has been defined as a sex- and age-specific BMI at or above the 95th percentile, based on revised Centers for Disease Control and Prevention (CDC) growth charts. (75)

Calories:

- Calorie (kilocalorie) is defined as "the amount of heat energy necessary to raise the temperature of a kilogram (a liter) of water 1 degree Celsius." (76, p 7)
- "Empty" calories are those from "foods and drinks high in calories and low in nutrients." (77, p 309)
- Number of excess calories needed for weight gain – it takes an excess of about 3,500 calories to gain a pound of fat. (76, p 342) This translates into consuming two twelve-ounce cans of average non-diet soda per day (150 calories each), or a quarter pound hamburger instead of a regular hamburger (150 additional calories) over and above daily nutrition requirements for 12 days.

Nutrients:

- Nutrients are "components of food that are indispensable to the body's functioning. They provide energy, serve as building material, help maintain or repair body parts, and support growth. The nutrients include water, carbohydrate, fat, protein, vitamins, and minerals." (76, p 2)
- Nutrient density is defined as a "measure of nutrients provided per calorie of food." (76, p 18)
- Competitive foods in the school lunch program are defined as any foods sold in competition with the Program (National School Lunch Program) to children in food service areas during lunch periods. (78)

References

1. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System, 2002.
2. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. State-Specific Prevalence of Selected Chronic Disease-Related Characteristics - Behavioral Risk Factor Surveillance System, 2001. *Morbidity and Mortality Weekly Report*, August 22, 2003; 52(ss-8).
3. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. Physical Activity and Good Nutrition: Essential Elements to Prevent Chronic Diseases and Obesity, 2003.
4. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics. Overweight Among U.S. Children and Adolescents. Available from: <http://www.cdc.gov/nchs/nhanes.htm>
5. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Health Statistics. Healthy Weight, Overweight, and Obesity Among U.S. Adults. Available from: <http://www.cdc.gov/nchs/nhanes.htm>
6. U.S. Department of Health and Human Services. The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Office of the Surgeon General, 2001. Available from: <http://www.surgeongeneral.gov/library>
7. U.S. Department of Agriculture and U.S. Department of Health and Human Services. Nutrition and Your Health: Dietary Guidelines for Americans. 5th Ed. Washington, DC: U.S. Department of Agriculture and U.S. Department of Health and Human Services, 2000. Available from: <http://www.health.gov/dietaryguidelines>
8. McGinnis, J.M., Foege, W.H., Actual Causes of Death in the United States. *Journal of the American Medical Association*. November 10, 1993; 270(18): 2207-12.
9. Allison, D.B., Fontaine, K.R., Manson, J.E., Stevens, J., VanItallie, T.B. Annual Deaths Attributable to Obesity in the United States. *Journal of the American Medical Association*. October 27, 1999; 282(16): 1530-8.
10. Wolf, A. What is the Economic Case for Treating Obesity? *Obesity Research*. 1998; 6(S1): 2S-7S.
11. U.S. Department of Health and Human Services. Healthy People 2010, Conference Edition. Washington, DC: January 2000.
12. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. The Burden of Chronic Diseases and their Risk Factors: National and State Perspectives, 2002.
13. Maine Health Data Organization, 1999.
14. Maine Department of Human Services, Bureau of Health. Healthy Maine 2010: Longer and Healthier Lives. December 2002.
15. Maine Department of Human Services, Bureau of Health. Maine Behavioral Risk Factor Surveillance System, 2002.
16. Maine Department of Education. Maine Youth Risk Behavioral Surveillance System, 2003.
17. Maine Department of Human Services, Bureau of Health. Maine Child Health Survey, 2003.

18. U.S. Department of Agriculture, Center for Nutrition Policy and Promotion, Home and Garden Bulletin No. 267-1. How Much Are You Eating, March 2002. Available from: <http://www.usda.gov/cnpp>
19. U.S. Department of Health and Human Services, National Institutes of Health, National Heart, Lung, and Blood Institute, NIH Publication No. 97-4061. Embrace Your Health!, September 1997. Available at: <http://www.nhlbi.nih.gov/health/public/heart/other/chdblack/embrace.htm>
20. U.S. Department of Agriculture, Agricultural Research Service. Data tables: Results from USDA's 1994-96 Continuing Survey of Food Intakes by Individuals and 1994-96 Diet and Health Knowledge Survey, 1997. Available at: <http://www.barc.usda.gov/bhnrc/foodsurvey/>
21. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. Preventing Chronic Diseases: Investing Wisely in Health. Preventing Obesity and Chronic Diseases Through Good Nutrition and Physical Activity, 2003.
22. Ni, H., Schiller, J., Hao, C., Cohen, R.A., Barnes, P. Early Release of Selected Estimates Based on Data from the First Quarter 2003 National Health Interview Survey. National Center for Health Statistics, September 2003. Available at: <http://www.cdc.gov/nchs/nhis.htm>.
23. U.S. Department of Agriculture. Profile of Overweight Children. Nutrition Insights, No. 13. Washington, D.C.: U.S. Department of Agriculture, Center for Nutrition Policy and Promotion. May 1999. Available from: <http://www.usda.gov/cnpp>.
24. Dietz, W. Battling Obesity: Notes from the Front, Chronic Disease Notes and Reports. United States Department of Health and Human Services, National Center for Chronic Disease Prevention and Health Promotion, Winter 2000; 13(1):2.
25. U.S. Department of Health and Human Services. Physical Activity and Health: a Report of the Surgeon General. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, 1996.
26. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. Promoting Better Health for Young People Through Physical Activity and Sports: A Report to the President from the Secretary of Health and Human Services and the Secretary of Education. Fall 2000.
27. National Blueprint: Increasing Physical Activity Among Adults Age 50 and Older. Sponsored by AARP, American College of Sports Medicine, American Geriatrics Society, The Centers for Disease Control and Prevention, The National Institute on Aging, and The Robert Wood Johnson Foundation. April 2001.
28. Barnes, P.M., Schoenborn, C.A. Physical Activity Among Adults: United States, 2000. Advanced Data from Vital and Health Statistics. Hyattsville, Maryland: National Center for Health Statistics, May 14, 2003; 333.
29. U.S. Department of Agriculture. Serving Sizes in the Food Guide Pyramid and on the Nutrition Facts Label: What's Different and Why? Nutrition Insights, No. 22. Washington, D.C.: U.S. Department of Agriculture, Center for Nutrition Policy and Promotion. December 2000. Available from: <http://www.usda.gov/cnpp>.
30. U.S. Department of Agriculture Information Bulletin No. 749. Away-from-Home Foods Increasingly Important to Quality of American Diet. Biing-Hwan, L, Frazao, E, Guthrie, J. January 1999.

31. U.S. Department of Agriculture Statistical Bulletin No. 965. Food Consumption, Prices and Expenditures, 1970-97. Putnam, J., Allshouse, J. April 1999.
32. Calle, E., Rodriguez, C., Walker-Thurmond, K., Thun, M. Overweight, Obesity, and Mortality from Cancer in a Prospectively Studied Cohort of U.S. Adults. *New England Journal of Medicine*. April 24, 2003; 348(17): 1625.
33. Wang, G., Dietz W. Economic Burden of Obesity in Youths Aged 6 to 17 years: 1979-1999. *Pediatrics*. May 2002; 109(5):e81. Available from: <http://www.pediatrics.org/cgi/content/full/109/5/e81>
34. Blumenthal, S., Hendi, J., Marsillo, L. A Public Health Policy Approach to Decreasing Obesity. *Journal of the American Medical Association*. 2002; 288(17): 2178.
35. Dwyer, J., Feldman, H., Yang, M., Webber, L., Must, A., Perry, C., Nader, P., Parcel, G. Maintenance of Lightweight Correlates with Decreased Cardiovascular Risk Factors in Early Adolescence. *Journal of Adolescent Health*. 2002; 31: 117-124.
36. Mokdad, A., Bowman, B., Ford, E., Vinicor, F., Marks, J., Koplan, J. The Continuing Epidemic of Obesity and Diabetes in the United States. *Journal of the American Medical Association*. 2001; 286 (10): 1195-1200.
37. Freedman, D., Deitz, W., Srinivasan, S., Berenson, G. The Relation of Overweight to Cardiovascular Risk Factors Among Children and Adolescents: The Bogalusa Heart Study. *Pediatrics*. 1999; 103 (6): 1175-1182.
38. Koplan, J., Dietz, W. Caloric Intake and Public Health Policy. *Journal of the American Medical Association*. October 27, 1999; 282(16): 1579-1581.
39. Cullen, K., Ash, D., Warneke, C., Moor C. Intake of Soft Drinks, Fruit-Flavored Beverages, and Fruits and Vegetables by Children in Grades 4 through 6. *American Journal of Public Health*. 2002; 92(9): 1475-1478.
40. Ludwig D., Peterson K., Gortmaker S. Relation Between Consumption of Sugar-Sweetened Drinks and Childhood Obesity: Prospective, Observational Analysis. *Lancet*. February 17, 2001; 357:505-508.
41. Heller, K.E., Burt, B.A., Eklund, S.A. Sugared Soda Consumption and Dental Caries in the United States. *Journal of Dental Research*. 2001; 80 (10): 1949-1953.
42. Guthrie J.F., Morton J.F. Food Sources of Added Sweeteners in the Diets of Americans. *Journal of The American Dietetic Association*. 2000; 100 (1): 43-51.
43. Harnack L., Strang J., Story M. Soft Drink Consumption Among U.S. Children and Adolescents: Nutritional Consequences. *Journal of The American Dietetic Association*. 1999; 99(4): 436-441.
44. Position of the American Dietetic Association: Use of Nutritive and Nonnutritive Sweeteners. *Journal of The American Dietetic Association*. 1998; 98(5): 580-587.
45. Rolls, B., The Supersizing of America: Portion Size and the Obesity Epidemic. *Nutrition Today*. March/April 2003; 38(2): 42-53.
46. Nielsen, S.J., Popkin, B.M. Patterns and Trends in Food Portion Sizes, 1977-1998. *Journal of the American Medical Association*. 2003; 289(4): 450-453.
47. Young, L.R., Nestle, M. Expanding Portion Sizes in the U.S. Marketplace: Implications for Nutrition Counseling. *Journal of The American Dietetic Association*. 2003, 103(2):231-234.
48. Nestle, M. Increasing Portion Sizes in American Diets: More Calories, More Obesity. *Journal of The American Dietetic Association*. 2003; 103(1): 39-40.

49. Smiciklas-Wright, H., Mitchell, D.C., Mickle, S.J., Goldman, J.D., Cook, A. Foods Commonly Eaten in the United States, 1989-1991 and 1994-1996: Are Portion Sizes Changing? *Journal of The American Dietetic Association*. 2003; 103(1): 41-47.
50. Young, L.R., Nestle, M. The Contribution of Expanding Portion Sizes to the U.S. Obesity Epidemic. *American Journal of Public Health*. 2002; 92 (2): 246-249.
51. Nicklas, T.A., Baranowski, T., Cullen, K.W., Berenson, G. Eating Patterns, Dietary Quality and Obesity. *Journal of the American College of Nutrition*. 2001; 20(6): 599-608.
52. Nestle, M., Jacobson, M. Halting the Obesity Epidemic: A Public Health Policy Approach. *Public Health Reports*. January/February 2000; 115: 12-24.
53. Rolls, B.J., Engell, D., Birch, L.L. Serving Portion Size Influences 5-Year-Old But Not 3-Year-Old Children's Food Intakes. *Journal of The American Dietetic Association*. 2000; 100 (2): 232-234.
54. Clauson, A. Spotlight on National Food Spending. *Food Review*. 2000; 23 (3): 15-17.
55. Putnam, J., Kantor, L.S., Allshouse, J. Per Capita Food Supply Trends: Progress Toward Dietary Guidelines. *Food Review*. 2000; 23 (3): 2-14.
56. Hill, J.O., Peters, J.C. Environmental Contributions to the Obesity Epidemic. *Science*. 1998; 280: 1371-1374.
57. Kirtland, K., Porter, D., Addy, C., Neet, M., Williams, J., Sharpe, P., Neff, L., Kimsey Jr., D., Ainsworth, B. Environmental Measures of Physical Activity Supports: Perception Versus Reality. *American Journal of Preventive Medicine*. May 2003; 24 (4): 323-331.
58. Corbin, C., Pangrazi, R. Physical Activity for Children: a Statement of Guidelines. Counsel on Physical Education for Children, National Association for Sport and Physical Education. Reston, VA: National Association for Sport and Physical Education, 1998.
59. Jones, A.D., Ainsworth, B.E., Croft, J.B, Macera, C.A., Lloyd, E.E., Yusuf, H.R. Moderate Leisure-Time Physical Activity: Who is Meeting the Public Health Recommendations? *Archives of Family Medicine*. 1998,7:285-289.
60. Symons, C.W., Cinelli, B., James, T.C., Groff, P. Bridging Student Health Risks and Academic Achievement Through Coordinated School Health Programs. *Journal of School Health*. 1997; 67(6): 220-227.
61. Dunn, A., Marcus, B., Kampert, J., Garcia, M., Kohl, H., Blair, S. Comparison of Lifestyle and Structured Interventions to Increase Physical Activity and Cardiorespiratory Fitness: A Randomized Trial. *Journal of the American Medical Association*. January 27, 1999; 281(4): 327-334.
62. Andersen, R.E, Wadden, T.A., Bartlett, S.J., Zemel, B., Verde, T. J., Franckowiak, S.C. Effects of Lifestyle Activity vs. Structured Aerobic Exercise in Obese Women. *Journal of the American Medical Association*. 1999; 281: 335-340
63. Catlin, T.K., Simoes, E.J., Brownson, R.C. Environmental and Policy Factors Associated with Overweight Among Adults in Missouri. *American Journal of Health Promotion*. March/April 2003; 17 (4): 249-258.
64. Craig, C.L., Brownson, R.C., Cragg, S.E., Dunn, A.L. Exploring the Effect of the Environment on Physical Activity: a Study Examining Walking to Work. *American Journal of Preventive Medicine*. August 2002; 23(2 Suppl): 36-43.
65. Brownson, R.C., Baker, E.A., Housemann, R.A., Brennan, L.K., Bacak, S.J. Environmental and Policy Determinants of Physical Activity in the United States. *American Journal of Public Health*. 2001; 91: 1995-2003.

66. Brownson, R.C., Housemann, R.A., Brown, D.R., Jackson-Thompson, J., King, A.C. Malone, B.R., Sallis, J.F. Promoting Physical Activity in Rural Communities: Walking Trail Access, Use, and Effects. *American Journal of Preventive Medicine*. 2000; 18: 235-241.
67. Crespo, C.J., Smit, E., Troiano, R.P., Bartlett, S.J., Macera, C.A., Andersen, R.E. Television Watching, Energy Intake, and Obesity in U.S. Children: Results from the Third National Health and Nutrition Examination Survey, 1998-1994. *Archives of Pediatrics and Adolescent Medicine*. 2001; 155: 360-365.
68. Kaiser Family Foundation. Kids and Media at the New Millennium: a Comprehensive National Analysis of Children's Media Use. November 1999. Available at: <http://www.kff.org>.
69. Robinson, T.N. Reducing Children's Television Viewing to Prevent Obesity. *Journal of the American Medical Association*. October 27, 1999; 282 (16): 1561-1567.
70. Gortmaker, S.L., Peterson, K., Wiecha, J., Sobol, A.M., Dixit, S., Fox, M.K., Laird, N. Reducing Obesity Via a School-Based Interdisciplinary Intervention Among Youth. *Archives of Pediatrics and Adolescent Medicine*. 1999; 153: 409-418.
71. Gortmaker, S.L., Must, A., Sobol, A.M., Peterson, K., Colditz, G.A., Dietz, W.H. Television Viewing as a Cause of Increasing Obesity Among Children in the United States, 1986-1990. *Archives of Pediatrics and Adolescent Medicine*. 1996; 150: 356-362.
72. Stunkard A.J., Wadden, T.A. (Editors) Obesity: Theory and Therapy, 2nd Edition. New York: Raven Press, 1993.
73. Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Nutrition and Physical Activity. Defining Overweight and Obesity. September 5, 2002. Available from: <http://www.cdc.gov/nccdphp/dnpa/obesity/defining.htm>
74. National Institutes of Health, National Heart, Lung, and Blood Institute. Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults. HHS, PHS; 1998. p 1. Available from: http://www.nhlbi.nih.gov/guidelines/obesity/ob_gdlns.htm
75. National Center for Health Statistics (NCHS), CDC. CDC Growth Charts: United States [Internet]. [Hyattsville (MD)]: NCHS [cited 2001 Oct 31]. Available from: <http://www.cdc.gov/growthcharts/> and <http://www.cdc.gov/nccdphp/dnpa/bmi/bmi-for-age.htm>
- 76.Sizer, F.S., Whitney, E.N. Nutrition: Concepts and Controversies, 8th Edition. Belmont, California: Wadsworth/Thomson Learning, 2000. www.wadsworth.com
77. Nestle, M. Soft Drink 'Pouring Rights': Marketing Empty Calories to Children. *Public Health Reports*. 2000; 115:308-317.
78. Federal Guidelines: 7 CFR Part 210 § 210.11. Competitive Food Services. August 1988. State Guidelines: Authority: 20MSRA Section 6602(5). Effective Date: August 31, 1979, Amended February 21, 1989. 10/97 Maine Department of Education.