3 Profile of Maine

Demographics

Maine has a population of 1.3 million residing in sixteen counties of significantly varying sizes and population densities.[12] Approximately 10% of the State's population lives in Portland, Lewiston, and Bangor, with the majority of citizens living in rural towns and cities. Maine's birth rate has decreased in the last decade, while the proportion of the population age 65 and older has increased. By 2020, nearly one in five Maine residents will be over 65 years of age.[13, 14] Ethnically, Maine is predominantly white (97%), with small minority populations including African Americans, Asians, Latinos, and four Native American tribes. Since 1999, several thousand refugees have settled primarily in the southern portion of the State. These individuals came from Bosnia, Iran, Iraq, Russia, Liberia, Somalia, Sudan, Afghanistan, and Cuba.

Underemployment continues to be a problem because of the seasonal nature of much of the State's economy. According to the Bureau of Labor Statistics, the 2004 unemployment rate was 4.6% (not seasonally adjusted), compared to a national rate of 6.0%.[15] Maine's median household income in 2003 was $39,838 as reported by the U.S. Census. This income was well below the national average of $43,564 and was the lowest rate in New England. In March 2005, Maine's average monthly food stamp participation was 82,190 households and 156,680 individuals. From March 2001 to March 2005, the number of Maine households receiving food stamps increased by 54%.[16]

Poverty is a major factor associated with poor nutritional status, which in turn impairs the cognitive development of children. About 11% of Maine's population lives in poverty, a figure similar to the proportion observed nationally for the white population. Poverty and the risk of poverty are increasing in children, the elderly, working households, and those unable to work. One in four Maine children live in poverty. In 2003, about 40% lived in homes where the income was less than 200% of the poverty level. The percentage of Maine children living without health insurance dropped from 10% in 1998 to 7% in 2003. This decrease was a result of the State's efforts to enroll children in MaineCare, Maine's health care program for low-income families.

According to the U.S. Census, 10% of Maine's population was food insecure in 1998.[17] The number of food pantries and soup kitchens in Maine has increased significantly in the past decade.[18] Although data on the number of individuals

12 Maine State Planning Office, 2003.
13 Maine Department of Human Services, Office of Data, Research, and Vital Statistics, 2002.
14 Maine State Planning Office, 2003.
15 Maine Department of Labor, 2003.
16 Maine Department of Health and Human Services, Food Stamp Program data, 2005.
17 U.S. Census Bureau, 2000.
18 Maine State Planning Office, 2001.

Profile of Maine *(continued)*

served is not available, participation continues to grow, and the sponsors are unable to meet the demand.

Maine continues to encounter regional differences of prosperity, with southern and coastal counties, except Washington, experiencing faster economic growth than inland and northern counties.[19] Although poverty is highest in rural areas, there are poor people in urban areas as well. Living in a more impoverished community puts individuals at more risk, above and beyond their own education and income levels, because there are fewer health, nutrition, and physical activity resources available in poorer communities.

Population groups with higher poverty rates and less education generally also have poorer health. Maine has one of the lowest rates of college graduates in the United States. In 2000, 85% of adults were high school graduates; and 23% had attained a bachelor's degree. According to the 1990 National Adult Literacy Survey, 15% of Maine adults can read a little, but not well enough to fill out an application or read a food label.[20] Another 27% can perform more complex tasks, such as making comparisons, but do not have higher-level reading and problem-solving skills.

Nutrition, Physical Activity, and the Health Connection

Dietary modifications and increased physical activity can reduce the incidence of and morbidity associated with chronic disease. In particular, a healthy diet and regular physical activity are essential for maintaining a healthy weight. Research suggests that encouraging individuals to become more involved in physical activity can indirectly influence other health behaviors. Therefore, physical activity may be a gateway behavior for other positive lifestyle changes, such as smoking cessation.[21]

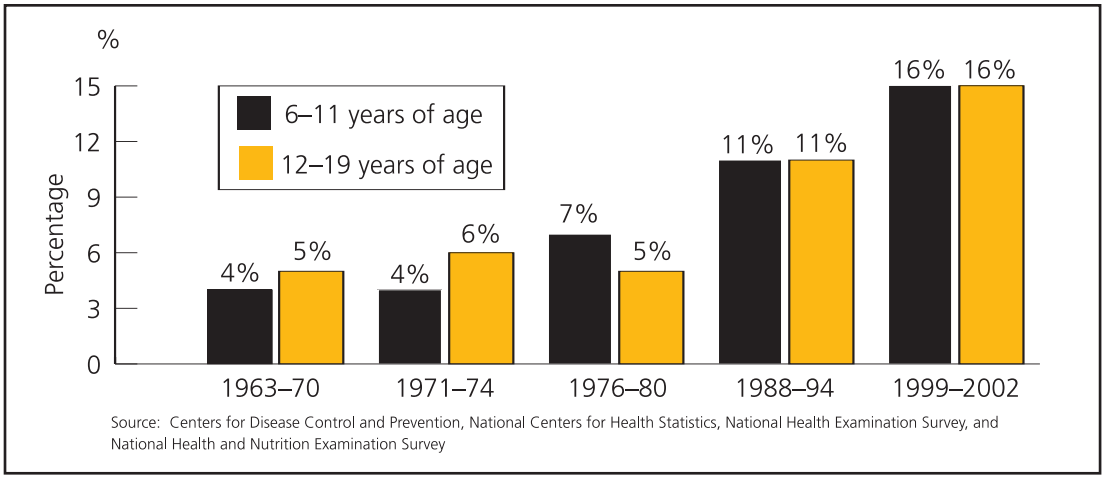
Coronary heart disease, cancer, stroke, and type 2 diabetes are four of the top-ten leading causes of death in the United States.[22] Obesity is associated with these four diseases, as well as with risk factors for coronary heart disease, such as high blood cholesterol and high blood pressure. Obesity is also associated with osteoarthritis, sleep apnea and pulmonary dysfunction, stroke, gallbladder disease, liver disease, and musculoskeletal disease.[23, 24] Furthermore, people with a body mass index

19 Maine State Planning Office, 2002.
20 Maine Department of Education, 2001.
21 Costakis CE, Dunnagan T & Haynes G. The relationship between the stages of exercise adoption and other health behaviors. *American Journal of Health Promotion.* 1999 Sept–Oct;14(1):22–30.
22 U.S. Department of Health and Human Services, National Center for Health Statistics. Report of Final Mortality Statistics, 1998 *Monthly Vital Statistics Report* 47(19). Centers for Disease Control and Prevention. 2000.
23 Must A *et al.* The disease burden associated with overweight and obesity. *Journal of the American Medical Association.* 1999; 282:1523–1529.
24 National Task Force on the Prevention and Treatment of Obesity. Overweight, obesity, and health risk. *Archives of Internal Medicine.* 2000; 160:898–904.

(BMI), a measure of weight in relation to height, at or greater than 30 have a 50%–100% higher risk of mortality from all causes than those with a BMI between 20 and 25.[25]

Recent studies report that 16% of children and adolescents ages 6 to 19 were overweight nationally (Figure 2), and another 15% were considered at risk of becoming overweight.[26]

Figure 2: Prevalence Of Overweight Among U.S. Children And Adolescents Ages 6–19 Years



Overweight children are more likely to become overweight or obese adults and are therefore at greater risk for chronic diseases as they age.[27] Of particular concern is the increase in prevalence of type 2 diabetes in children, as this disease is normally seen in adults older than 40. Overweight and obesity are risk factors associated with type 2 diabetes, and increasing rates of overweight and obesity may be related to the increase in type 2 diabetes in children. Regular physical activity can delay or perhaps prevent the onset of type 2 diabetes.[28]

Recent research published by the Centers for Disease Control and Prevention documents that diabetes has also increased rapidly among U.S. adults during the 1990s.[29] Between 1990 and 1998, a 70% increase in diabetes was found in the 30–39 age group, a 40% increase among people in their 40s, and a 31% increase among those in their 50s.

25 Calle EE *et al*. Body mass index and mortality in a prospective of U.S. adults. *New England Journal of Medicine*. 1999; 341:1097–1105.

26 U.S. Department of Health and Human Services. Overweight Among U.S. Children and Adolescents. Centers for Disease Control and Prevention, National Health and Nutrition Examination Survey. 2004.

27 U.S. Department of Health and Human Services. Healthy People 2010, Conference Edition. Washington, D.C. January 2000.

28 American Diabetes Association. The prevention or delay of type 2 diabetes. *Diabetes Care* 2002; 25(4): 742–749.

29 Mokdad AH *et al*. The continuing epidemics of obesity and diabetes in the United States. *Journal of the American Medical Association*. 2001; 286:1195–1200.

Profile of Maine *(continued)*

Good nutrition and physical fitness play an important role in overall health throughout life, as well as in preventing overweight and obesity. Food and physical activity habits and behaviors begin to develop at birth and continue to mature throughout childhood into the adult years. Thus, it is important to form good health habits during childhood and adolescence that will last a lifetime. *The Bright Futures Guidelines* provide a framework for health professionals to promote the developmental health and well-being of youth, in partnership with families and communities. The Guidelines recommend detailed nutrition and physical activity strategies and tools from birth to young adulthood.[30] The National Association for Sport and Physical Education (NASPE) recognizes that being active from an early age will help children be physically fit later in life. NASPE recommends physical activity guidelines for youth and adults, as well as national standards for physical education.[31]

The typical American diet is high in fat, cholesterol, and sodium; and low in dietary fiber. The Dietary Guidelines for Americans provide recommendations for healthy eating and physical activity behaviors, and the My Pyramid Food Guidance System is a useful framework to translate the Guidelines into daily food choices.[32, 33] However, only about 2% of American children eat a diet that follows the Food Guide Pyramid.[34] A diet based on whole grains, fruits, and vegetables is associated with a reduced risk of certain chronic diseases such as cancer, heart disease, and diabetes. The Dietary Guidelines recommend consumption of five or more servings of vegetables and fruits daily.

Although the focus is often on dietary excesses, many Americans lack adequate consumption of key nutrients including iron, folate, and calcium. Consumption of iron-rich foods is important for preventing iron-deficiency anemia among children as well as in women of reproductive age. Folate helps prevent neural tube defects in infants and may help prevent heart disease in some individuals. Calcium-rich foods are necessary to help build strong bones and prevent bone fractures and osteoporosis.

Disparities in health status indicators and risk factors for diet-related diseases are evident in many segments of the population based on gender, age, race and ethnicity, education, and income. Although overweight and obesity are observed in all population groups, obesity and related chronic diseases are particularly common among Latino, African American, Native American, and Pacific Islander

30 U.S. Department of Health and Human Services, National Center for Education in Maternal and Child Health. http://www.brightfutures.org.

31 National Association for Sport and Physical Education, www.aahperd.org/naspe.

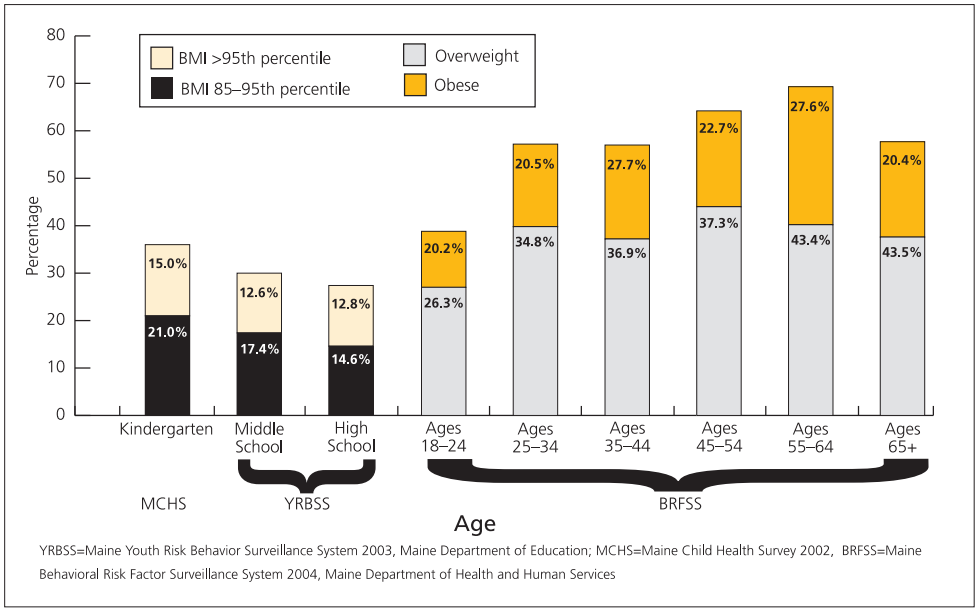
32 U.S. Department of Health and Human Services and U.S. Department of Agriculture. Dietary Guidelines for Americans, 2005. 6th Edition, Washington, D.C.: U.S. Government Printing Office, January 2005 (www.healthierus.gov/dietaryguidelines).

33 U.S. Department of Agriculture. MyPyramid, April 2005 (www.mypyramid.gov).

34 Munoz K *et al*. Food intakes of U.S. children and adolescents compared with recommendations. *Pediatrics* 1997; 100: 323–329.

women.[35] In Maine, adults 55–64 years of age have the highest body mass index as illustrated in Figure 3.

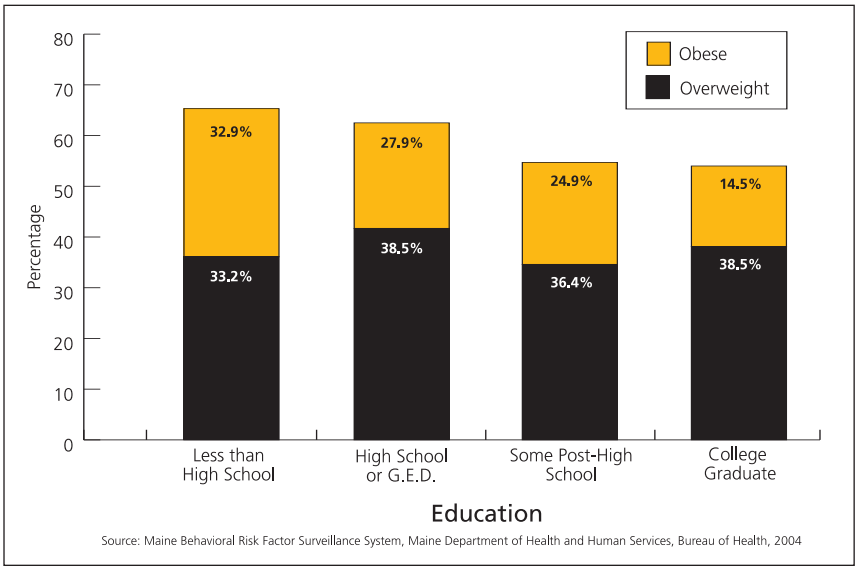
Figure 3: Maine Obesity And Overweight Rates By Age, 2004



YRBSS=Maine Youth Risk Behavior Surveillance System 2003, Maine Department of Education; MCHS=Maine Child Health Survey 2002, BRFSS=Maine Behavioral Risk Factor Surveillance System 2004, Maine Department of Health and Human Services

Maine men are more likely to be overweight (47%) than Maine women (29%); and slightly more men (24%) are obese than women (23%). It is difficult to assess rates of overweight and obesity among Maine's racial minorities due to small sample sizes. Maine adults with low socioeconomic status are more likely to be overweight or obese. Sixty-six percent of Maine adults with less than a high school education are overweight or obese, compared to 53% of those with a college degree (Figure 4).

Figure 4: Maine Adults Obese Or Overweight By Education, 2004



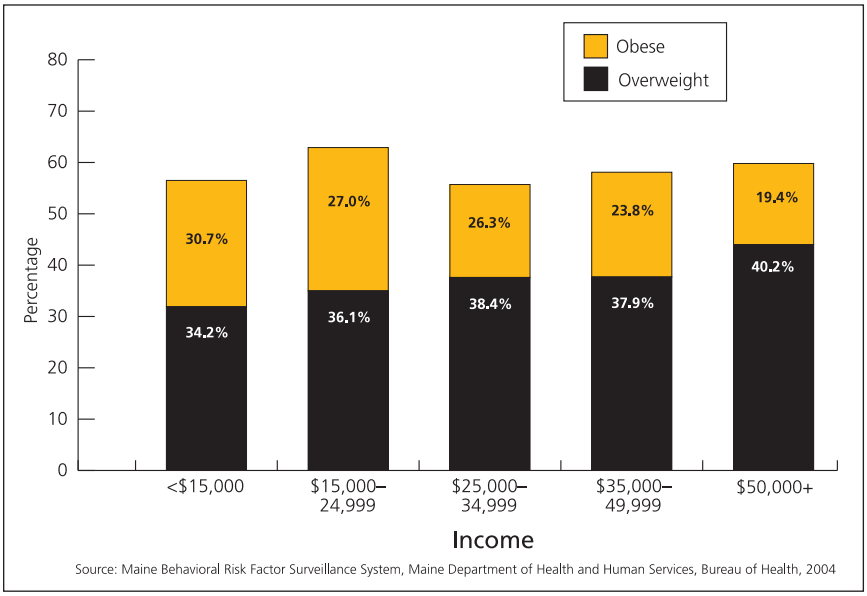
Source: Maine Behavioral Risk Factor Surveillance System, Maine Department of Health and Human Services, Bureau of Health, 2004

35 Maine Department of Human Services, Bureau of Health. *Healthy Maine 2010: Opportunities for All.* December 2002.

Profile of Maine *(continued)*

Thirty-one percent of Mainers with less than $15,000 annual household income are obese, compared to 19% of those with incomes of $50,000 or greater (Figure 5). Sixty-seven percent of Mainers who report a disability are overweight or obese, as compared to 56% of nondisabled adults.[36]

Figure 5: Maine Adults Obese Or Overweight By Income, 2004



Despite concerns about the increase in overweight, obesity, and certain excesses in U.S. diets, there remain segments of the population who suffer from malnutrition, including persons who are socially isolated and poor. The recognition of the consequences of food insecurity (limited access to safe, nutritious food) has led to the development of national measures to evaluate food insecurity and to assess related disparities among different population groups. People with low incomes as well as people of non-white race and ethnicity experience disparities related to food security and malnutrition, such as growth retardation and iron deficiency.

Trends in Overweight and Obesity, Physical Activity Status, and Food Choices of People in Maine

Overweight and Obesity

Weight is classified according to body mass index (BMI=weight [kilograms]/height [meters]^2) as outlined in Figure 6. Adults with a BMI at or above 30 are classified as obese, which is about 30 pounds overweight. Adults with a BMI at or above 25, but less than 30, are classified as overweight. Adults with a BMI less than 18.5 are considered underweight.

36 Maine Behavioral Risk Factor Surveillance System, Maine Department of Health and Human Services, 2002–2004.

Figure 6: Adult Body Mass Index (BMI) Chart

Locate the height of interest in the left-most column and read across the row for that height to the weight of interest. Follow the column of the weight up to the top row that lists the BMI. BMI of 19–24 is the healthy weight range, BMI of 25–29 is the overweight range, and BMI of 30 and above is the obese range.

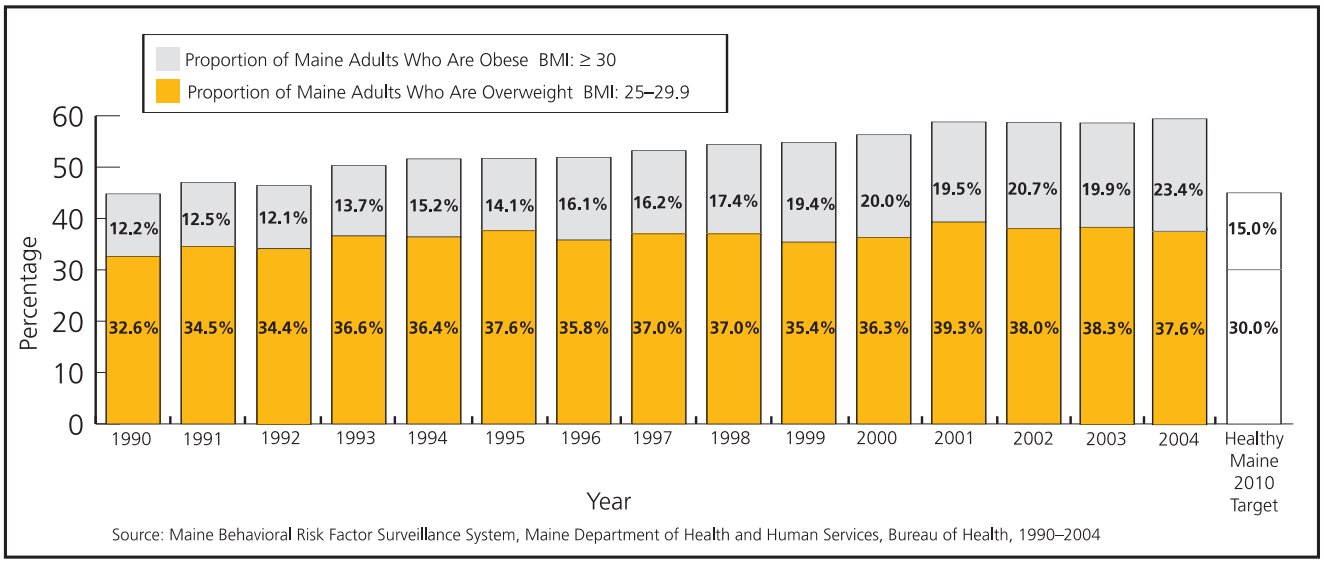
BMI	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35
4'10''	91	96	100	105	110	115	119	124	129	134	138	143	148	153	158	162	167
4'11''	94	99	104	109	114	119	124	128	133	138	143	148	153	158	163	168	173
5'	97	102	107	112	118	123	128	133	138	143	148	153	158	163	168	174	179
5'1''	100	106	111	115	122	127	132	137	143	148	153	158	164	169	174	180	185
5'2''	104	109	115	120	126	131	136	142	147	153	158	164	169	175	180	186	191
5'3''	107	113	118	124	130	135	141	146	152	158	163	169	175	180	186	191	197
5'4''	110	116	122	128	134	140	145	151	157	163	169	174	180	186	192	197	204
5'5''	114	120	126	132	138	144	150	156	162	168	174	180	186	192	198	204	210
5'6''	118	124	130	136	142	148	155	161	167	173	179	186	192	198	204	210	216
5'7''	121	127	134	140	146	153	159	166	172	178	185	191	198	204	211	217	223
5'8''	125	131	138	144	151	158	164	171	177	184	190	197	203	210	215	223	230
5'9''	128	135	142	149	155	162	169	176	182	189	196	203	209	215	223	230	236
5'10''	132	139	146	153	160	167	174	181	188	195	202	209	216	222	229	236	243
5'11''	136	143	150	157	165	172	179	186	193	200	208	215	222	229	236	243	250
6'	140	147	154	162	169	177	184	191	199	206	213	221	228	235	242	250	258
6'1''	144	151	159	166	174	182	189	197	204	212	219	227	235	242	250	257	265
6'2''	148	155	163	171	179	185	194	202	210	218	225	233	241	249	256	264	272
6'3''	152	160	168	176	184	192	200	208	216	228	232	240	248	256	264	272	279
	Healthy Weight						Overweight					Obese					

Source: Evidence Report of Clinical Guidelines on the Identification, Evaluation, and Treatment of Overweight and Obesity in Adults, 1998. National Heart, Lung, and Blood Institute (NHLBI).

Profile of Maine *(continued)*

Obesity has become a public health epidemic in Maine. More than half (61%) of Maine's adults are considered overweight (38%) or obese (23%).[37] This is a dramatic increase since 1990, when only 45% of adults in Maine were considered overweight or obese. The incidence of obesity among adults increased steadily from 12% in 1990 to 23% in 2004. Figure 7 illustrates this alarming increase in the percentage of overweight and obese adults in Maine over the past decade.

Figure 7: Proportion Of Maine Adults Age 18 And Older Who Are Overweight And/Or Obese, 1990–2004



Source: Maine Behavioral Risk Factor Surveillance System, Maine Department of Health and Human Services, Bureau of Health, 1990–2004

Since 1990, data from self-reported studies indicate that obesity rates have increased for all groups—both sexes, all ages, all races, all education levels, and smokers and nonsmokers.[38] True obesity rates are likely to be underestimated because research indicates that participants tend to underestimate their weight and overestimate their height.[39, 40] Obesity is a significant risk factor for chronic diseases such as cardiovascular disease, diabetes, and some cancers; hence it is reasonable to assume that the risk for these diseases is also increasing.

Overweight among children is defined as being at or above the 95th percentile body mass index (BMI) for age and gender; and at risk for overweight is defined as

37 Maine Behavioral Risk Factor Surveillance System, Maine Department of Health and Human Services, 2004.
38 Maine Behavioral Risk Factor Surveillance System, Maine Department of Health and Human Services, 2004.
39 Rowland ML. Self-reported weight and height. *American Journal of Clinical Nutrition*. 1990; 52:1125–1133.
40 Palta M *et al*. Comparison of self-reported and measured height and weight. *American Journal of Epidemiology*. 1982; 115:223–230.

being between the 85th and 94th percentile BMI for age and gender. BMI is used to assess underweight, overweight, and at risk for overweight. BMI for youth is age- and gender-specific because body fatness changes with growth and maturity. The 2000 CDC growth charts are tools for evaluating the growth of children in clinical and research settings. The growth charts consist of a series of percentile curves that illustrate the distribution of selected body measurements in U.S. children, ages 2 to 20 years.[41]

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.[42] Maine's prevalence of overweight and at risk for overweight does not differ appreciably from the national average for either boys or girls. Results from the 2003 Youth Risk Behavior Surveillance System document that 13% of Maine middle and high school students were overweight, with 18% of middle school and 15% of high school students at risk for overweight. Similarly, data from the Maine Child Health Survey indicate that 15% of children entering kindergarten in the fall of 2002 were overweight and 21% were at risk for overweight.[43, 44]

Physical Activity

One of the major contributing factors to weight gain is physical inactivity. *Healthy People 2010* recommends engaging in moderate physical activity for at least 30 minutes per day to help ensure caloric expenditure is balanced with caloric intake. Adequate physical activity for adults is defined as 30 minutes or more of moderate-intensity activity for five or more days per week or 20 minutes or more of vigorous activity for three or more days per week.[45] Accumulating physical activity in as little as three ten-minute increments over the course of a day has been proven as an effective way to increase physical fitness.[46]

A variety of factors contribute to the epidemic of overweight and obesity in Maine. Lack of education, insufficient motivation, limited access to supportive environments which enable healthy food choices, and low levels of participation in daily physical activity are all major issues that need to be addressed. Increasingly in today's society, workers are employed in jobs that require very little physical

41 U.S. Department of Health and Human Services, Centers for Disease Control and Prevention http://www.cdc.gov/growthcharts.

42 U.S. Department of Health and Human Services. Overweight Among U.S. Children and Adolescents. Centers for Disease Control and Prevention, National Health and Nutrition Examination Survey, 2004.

43 Maine Youth Risk Behavior Surveillance System, Maine Department of Education, 2003.

44 Maine Child Health Survey, Maine Department of Health and Human Services, 2002

45 U.S. Department of Health and Human Services. Physical Activity and Health: A Report of the U.S. Surgeon General. 1996.

46 Dunn AL, Andersen RE & Jakicic JM. Lifestyle physical activity interventions: History, short- and long-term effects, and recommendations. *American Journal of Preventive Medicine.* 1998; 15(4):398–412.

Profile of Maine *(continued)*

labor, while high-calorie, high-fat foods are convenient and readily available outside the home. In short, energy intake is exceeding energy needs.

In today's fast-paced society, many people cite lack of time as a barrier for being physically active. The societal trends of working many hours, commuting long distances, and working multiple jobs and the increase of single-parent households restrict the amount of leisure time available. Along with lacking the time to prepare healthy meals, many also feel that healthy meals are too expensive.

Research has found that the prevalence of leisure-time inactivity is inversely related to the degree of urbanization in the United States. The prevalence of inactivity was lowest (27%) in metropolitan centers and highest (37%) in rural areas.[47] The rural nature of Maine has a significant impact on the capacity to improve physical activity. Limited sidewalks, walking trails, bicycle paths, and other resources for physical activity in rural areas of the State are important environmental barriers. Simple access to facilities for physical activity is a major hurdle for many Maine citizens. Climate and hours of daylight also limit the opportunity to be active outdoors year-round—cold and ice in winter force many people to remain in their homes.

Almost half of Maine adults did not participate in sufficient levels of physical activity as illustrated in Figure 8. Recommended physical activity is defined as reported moderate-intensity activities in a usual week (e.g., brisk walking, bicycling, vacuuming, gardening, or anything else that causes small increases in breathing or heart rate) for at least 30 minutes per day, at least 5 days per week; or vigorous-intensity activities in a usual week (e.g., running, aerobics, heavy yard work, or anything else that causes large increases in breathing or heart rate) for at least 20 minutes per day, at least 3 days per week or both. This can be accomplished through lifestyle activities (e.g., household, transportation, or leisure-time activities). Insufficient physical activity is defined as doing more than 10 minutes total per week of moderate or vigorous-intensity lifestyle activities (e.g., household, transportation, or leisure-time activity), but less than the recommended level of activity. Inactivity is defined as less than 10 minutes total per week of moderate or vigorous-intensity lifestyle activities (e.g., household, transportation, or leisure-time activities).[48]

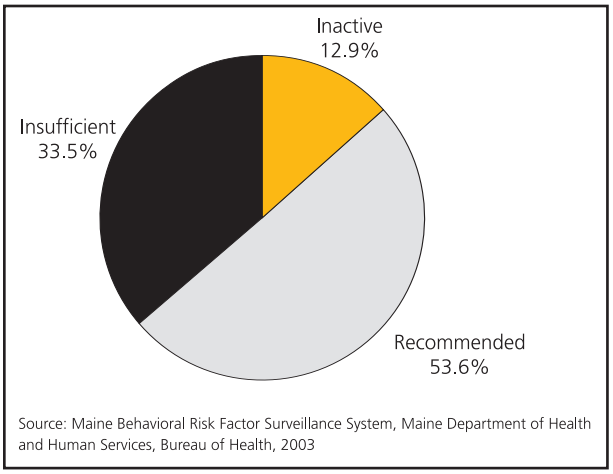
Twenty percent of Maine adults reported no leisure-time physical activity. No leisure-time physical activity is defined as no leisure-time physical activities (e.g., any physical activities or exercises such as running, calisthenics, golf, gardening, or walking) in the previous month. Only 11% of Maine college graduates reported no leisure-time physical activity, while among those with less than a high school

47 U.S. Department of Health and Human Services. Centers for Disease Control and Prevention. Self-Reported Physical Inactivity by Degree of Urbanization—United States, 1996. *Morbidity and Mortality Weekly Report,* 1998; 47(50):1097–1100.

48 Maine Behavioral Risk Factor Surveillance System, Maine Department of Health and Human Services, 2003.

education the rate is 45%. Twenty-seven percent of Maine adults living in a household with an income less than $25,000 reported no leisure-time physical activity compared with only 11% of adults living in a household with an income ≥$50,000.[49]

Figure 8: Physical Activity Levels For Maine Adults, 2003



Source: Maine Behavioral Risk Factor Surveillance System, Maine Department of Health and Human Services, Bureau of Health, 2003

As stated in the Centers for Disease Control and Prevention document *Promoting Better Health for Young People through Physical Activity and Sports:*[50]

> *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.*

Today's society has become very sedentary, and this has impacted the well-being of our youth. Technological advances have reduced the need for daily physical activity and increased the time spent in sedentary behaviors. Increased rates of overweight in children have coincided with a nationwide declining trend in walking and biking. Most children in the U.S. are bused or driven to school, and transportation via motorized vehicles becomes the norm as children grow older. During 2001–2003, the Maine Department of Transportation coordinated a research project to determine existing rates of bicycling and walking to school in the State. The findings show that, of the four schools surveyed, 85% of parents would not allow their children in grades K–8 to walk or bike to school even though 24% of them lived within one mile of the school. Parents of children in grades K–2 felt they were

49 Maine Behavioral Risk Factor Surveillance System, Maine Department of Health and Human Services. 2003.

50 U.S. Department of Health and Human Services and U.S. Department of Education. 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. Atlanta, GA: Centers for Disease Control and Prevention. 2000.

Profile of Maine *(continued)*

too young to walk to school; and parents of children in grades 3–8 felt parental supervision was necessary. Rural students were less likely to walk or bike to school except in rural village settings. The most frequent concerns cited by parents included safety in traffic, insufficient sidewalks, and vehicle speed.[51]

Physical activity continues to be displaced with television, electronic games, and computers. School budget cuts to physical education programs have also contributed to the decrease in youth physical activity rates. Low levels of physical activity are associated with an increased risk of obesity.

The National Association for Sport and Physical Education recommends:[52]

> *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.*

The Maine Youth Risk Behavior Surveillance System reveals that 36% of Maine high school students participated in an insufficient amount of physical activity. Also, over a quarter of Maine high school students (26%) watched three or more hours of television per day on an average school day.[53] National data show that the prevalence of obesity is lowest among children watching one or fewer hours of television a day and highest among those watching four or more hours of television a day.[54] A recent survey by the Kaiser Family Foundation indicates that more than half of all U.S. youth have television sets in their bedrooms, with an average of three televisions per home.[55] The Kaiser Family Foundation research on Kids and Media shows that, nationally, children ages 2 to 18 years of age spend an average of over four hours per day watching television or videotapes, playing video games, or using a computer. Most of this time (2 3/4 hours) is spent watching television. About 17% of children in the U.S. watch more than five hours of television per day.[56]

Schools are an ideal vehicle for providing nutrition and physical activity education because most children and adolescents can be reached in the school setting. Nutrition and physical education should be taught as part of a comprehensive school health education program that is aligned with the Maine *Learning Results*.

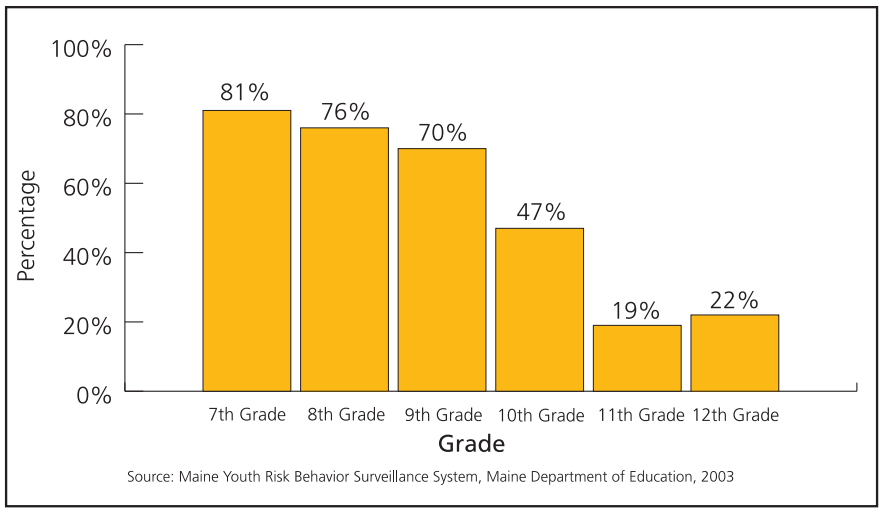
51 Maine Department of Transportation. Maine Safe Ways to School 2001-2003, Augusta, Maine. 2004.
52 Corbin C. & Pangrazi R. Physical Activity for Children: A Statement of Guidelines. Reston, VA: National Association for Sport and Physical Education. 2004.
53 Maine Youth Risk Behavior Surveillance System. Maine Department of Education, 2003.
54 U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. *Chronic Disease Notes and Reports*; Vol. 13, No. 2, Winter 2000.
55 Kaiser Family Foundation. Kids and Media at the New Millennium: A Comprehensive National Analysis of Children's Media Use. November 1999.
56 French SA, Story M & Jeffery RW. Environmental influences on eating and physical activity. *Annual Review Public Health*. 2001; 22:309–335.

Maine's *Learning Results* serves as the focal point for State and local efforts to improve student learning, define professional development needs, update local curriculum and instructional practices, and assess student achievement. The *Learning Results* identifies the knowledge and skills essential to prepare Maine students for work, higher education, citizenship, and personal fulfillment.[57]

A well-designed health curriculum that effectively addresses essential nutrition education topics can increase students' knowledge about nutrition, shape appropriate attitudes, and develop the behavioral skills that students need to plan, prepare, and select healthy meals and snacks. Programs that encourage specific, healthful eating behaviors and provide students with the skills needed to adopt and maintain those behaviors have led to favorable changes in student dietary behaviors and cardiovascular disease risk factors.[58] Participation in daily physical education in schools ensures at least a minimum amount of physical activity among children and adolescents and provides an opportunity to teach activities for lifelong physical fitness.

Although physical education has been recommended in Maine as part of a Comprehensive School Health Education Program, participation in physical education classes declines with grade level. The 2003 Maine Youth Risk Behavior Surveillance Survey shows about 81% of seventh grade students participated in physical education class on one or more days during an average school week, compared to only 22% of twelfth grade students (Figure 9).[59]

Figure 9: Percentage Of Maine Middle And High School Students Who Attended Physical Education Class On One Or More Days During An Average School Week By Grade, 2003

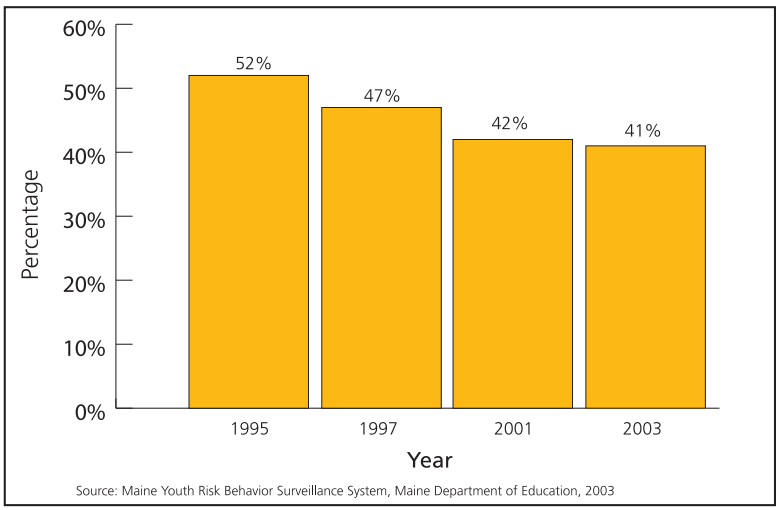


57 Maine Department of Education State of Maine *Learning Results*. Augusta, Maine. 1997.
58 U.S. Department of Health and Human Services. *Healthy People 2010*, Conference Edition. Washington, D.C. January 2000.
59 Maine Youth Risk Behavior Surveillance System. Maine Department of Education, 2003.

Profile of Maine *(continued)*

The trend for Maine high school students also shows a decline in physical education participation, from 52% in 1995 to 41% in 2003 as illustrated in Figure 10. Only 8% of Maine high school students attended physical education class daily.[60] This is well below the *Healthy People 2010* objective of increasing the proportion of adolescents who participate in daily school physical education to 50%.

Figure 10: Proportion Of Maine High School Students Who Attended Physical Education Class On One Or More Days During An Average School Week, 1995–2003



Food Choices

Food choices greatly affect a person's weight and overall health. In 1995, almost two-thirds of Maine adults consumed more than the recommended 30% of their calories from fat each day. More recent data shows that approximately 27% of Maine adults and only 23% of Maine high school students ate the recommended five servings of fruits and vegetables every day. Similarly, only 19% of Maine adults who have less than a high school education reported consuming five or more servings of fruits and vegetables daily, as compared to 35% of Maine college graduates.[61] Only 22% of Maine high school students drank the recommended three or more glasses of milk per day, with more males (29%) than females (14%) drinking three or more glasses per day.[62] Milk is an excellent, readily available source of calcium, which is important during adolescence when bone formation is critical.

60 Maine Youth Risk Behavior Surveillance System. Maine Department of Education, 1995-2003.
61 Maine Behavioral Risk Factor Surveillance System, Maine Department of Health and Human Services, 2003.
62 Maine Youth Risk Behavior Surveillance System, Maine Department of Education, 2003.

Although research has been conducted on the nutrition and physical activity status of Maine citizens, as summarized in the *Conspectus of Nutritional Assessments of the Maine Population Across the Lifespan, 1966–1999,* there are no other comprehensive, population-based studies that describe the eating and physical activity habits of Maine people.[63] However, according to the Healthy Eating Index, a measure of how well American diets conform to recommended healthy eating patterns, almost 90% of Americans have diets that are poor or need improvement.[64] Overall, Americans consume too many added sugars and added fats and do not consume enough fruits, vegetables, and whole grains.[65]

As stated in the Centers for Disease Control and Prevention Chronic Disease Notes and Reports:[66]

> *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 non-obese, 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.*

Excess energy intake is a major factor that influences an individual's body weight. National data show that, between 1984 and 1994, the average daily caloric intake per person increased by 340 calories. This extra 340 calories per day could lead to 36 pounds of additional body fat in a year if an individual's metabolism and physical activity level remained the same. Some of the increased consumption of calories appears to be the result of an increase in eating out. In 1995, one-third of the total food energy consumption came from foods eaten away from home.[67] When eating out, people tend to eat more food and/or higher calorie foods.

63 Cook RA, Leiter JL & Milan JA. *A Conspectus of Nutritional Assessments of the Maine Population Across the Lifespan*, 1966-1999. University of Maine Publication 746, May 2000.

64 Kennedy E *et al.* Diet Quality of Americans. Healthy Eating Index. U.S. Department of Agriculture, Economic Research Service, Food and Rural Economics Division. Agriculture Information Bulletin No. 750, 1999.

65 Putnam J, Kanter LS & Allshouse J. Per capita food supply trends: progress toward dietary guidelines. *Food Review.* 2000; 23(3):2–14.

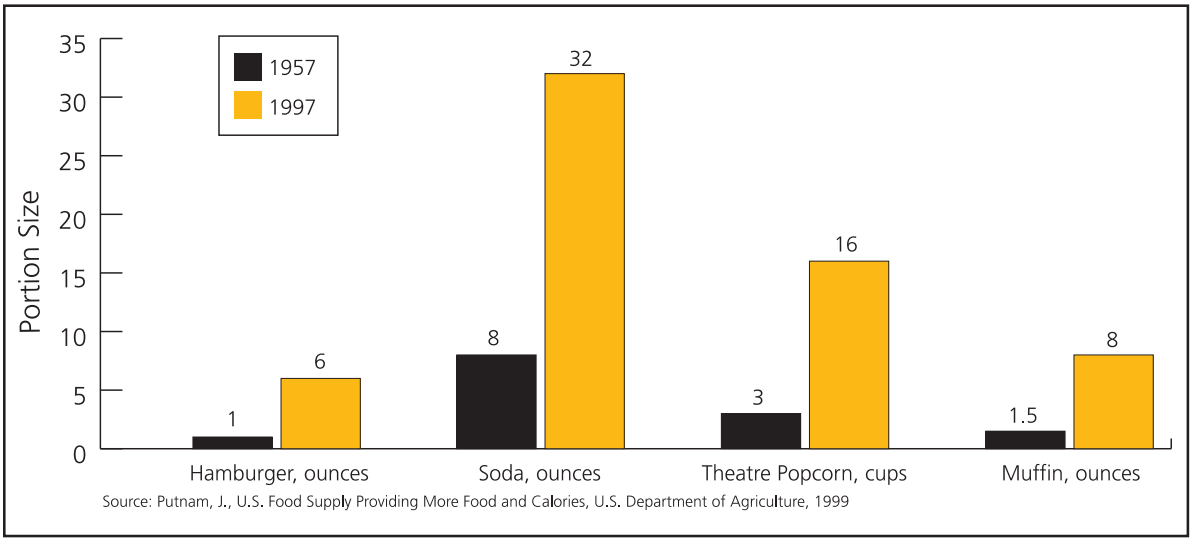
66 U.S. Department of Health and Human Services, Centers for Disease Control and Prevention. Chronic Disease Notes and Reports; Vol. 13, No. 2, Winter 2000.

67 Putnam J. U.S. food supply providing more food and calories. *Food Review.* 1999; 22(3):2–12.

Profile of Maine *(continued)*

Figure 11 shows an intriguing comparison of fast-food portion sizes in 1957 and 1997. In 1957, the typical fast-food hamburger consisted of about one ounce of cooked meat, jumping up to six ounces in 1997. Soda was eight ounces in 1957, compared with 32 to 64 ounces in 1997. A medium-size popcorn at the theatre was three cups in 1957, increasing to 16 cups in 1997. A muffin was less than one and a half ounces in 1957, compared with five to eight ounces in 1997.[68]

Figure 11: Average Fast-Food Portion Sizes In 1957 Versus 1997



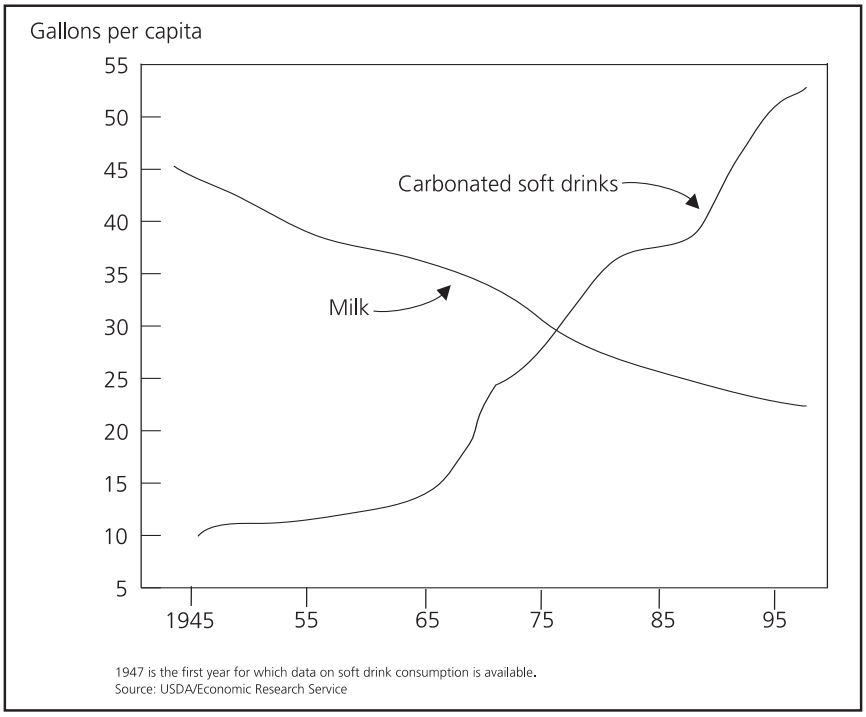
There is a well-established practice of restaurants offering and promoting larger portion sizes, especially in fast-food restaurants where a typical menu offers "super sized" items. Larger serving sizes are usually offered at a modest price increase, but offer a hefty increase in the amount of calories and fat. This environmental trend promotes obesity by providing more frequent opportunities to consume large quantities of food.[69] The temptation to get more food for less money is a contributing factor in the obesity epidemic.

The U.S. per capita consumption of caloric sweeteners is dramatically high. In 1999, the average American diet consisted of 34 teaspoons of added sugars per day.[70] The Dietary Guidelines for Americans recommends that people consuming 1,600 calories a day limit their intake of added sugars to three teaspoons per day, and up to 12 teaspoons for those consuming 2,800 calories.[71] Soft drinks are the leading source of added sugars in the diet, with an average 12-ounce soda providing ten teaspoons of sugar. Soft drink consumption nearly tripled among adolescent

68 Putnam J. U.S. food supply providing more food and calories. *Food Review.* 1999; 22(3):2–12.
69 Hill JO & Peters JC. Environmental contributions to the obesity epidemic. *Science.* 1998; 280:1371–1374.
70 Putnam J, Kanter LS & Allshouse J. Per capita food supply trends: progress toward dietary guidelines. *Food Review.* 2000; 23(3):2–14.
71 U.S. Department of Health and Human Services and U.S. Department of Agriculture. *Dietary Guidelines for Americans,* 2005. 6th Edition, Washington, D.C.: U.S. Government Printing Office, January 2005.

males between 1977 and 1995. Figure 12 shows the rise in the U.S. consumption of soft drinks compared to milk over five decades.

Figure 12: U.S. Soft Drink Consumption Compared To Milk, 1945–1995



Soda adds non-nutritious calories to the diet. Results from a recent study showed that students drinking an average of nine ounces or more of soft drinks daily consumed almost 200 calories more per day than those drinking no soft drinks. An extra 200 calories per day translates into a weight gain of 21 pounds in a year. This reinforces the notion that the extra calories from sugar-sweetened drinks could easily contribute to obesity.[72]

Until very recently, there was a growing trend in the availability of soft drink vending machines in schools and at worksites. Schools, worksites, and restaurants often have exclusive-rights contracts with the soda companies. These contracts have certain restrictions, such as numbers of vending machines and required volumes of sales. In 2002, 240 U.S. school districts entered into exclusive "pouring rights" contracts with soft drink companies.[73] The Maine Department of Education adopted ruling in 2005 that prohibits the sale of foods and beverages of minimal nutritional value, as defined by Federal regulation, at any time on school property of a school participating in any of the child nutrition programs.

72 Ludwig DS, Peterson KE & Gortmaker SL. Relation between consumption of sugar-sweetened drinks and childhood obesity: a prospective, observational analysis. *Lancet*. 2001; 357(9255):505–508.

73 Fried EJ & Nestle M. The growing political movement against soft drinks in schools. *Journal of the American Medical Association*. 2002; 288(17):2181.

Profile of Maine *(continued)*

As the food environment has changed to increase food availability, there has also been a dramatic change in exposure to messages that encourage food consumption. Television has been cited as a contributing factor to higher dietary energy or fat intake. Exposure to food advertising, especially commercials for fast food or convenience foods, may influence viewers' food choices toward higher-fat or higher-energy foods. Television is the most widely used advertising medium, which is not surprising given that televisions are present in 98% of U.S. households and adults spend an average of two hours per day watching television.[74]

In 1997, fast-food restaurants spent over 95% of their advertising budgets on television advertisements. Advertising by food service, mostly fast-food restaurants, accounted for 28% of the total mass-media advertising dollars spent by the food service industry. In 1997, Coca-Cola spent $277 million on advertising. In 1998, McDonald's spent $572 million, and Burger King spent $408 million. Contrast these figures with the $30 million spent by the "milk mustache" and "Got milk?" campaigns in 1996 and the $1 million spent in 1999 by the National Institutes of Health/National Cancer Institute to promote the "5 A Day" message. In 1997, the entire amount spent by the U.S. Department of Agriculture on nutrition education, evaluation, and demonstration was $333 million, or a mere 3% of what the food industry spent in the same year.[75]

It is apparent that the environment affects individual choices related to nutrition and physical activity. Therefore, appropriate interventions must address environmental factors as well as behavioral factors in the State's efforts to prevent and treat overweight and obesity.[76] All sectors of society must work together to help support healthy opportunities where Maine citizens live, work, play, and go to school.

74 French SA, Story M & Jeffery RW. Environmental influences on eating and physical activity. *Annual Review Public Health*. 2001; 22:309–335.

75 French SA, Story M & Jeffery RW. Environmental influences on eating and physical activity. *Annual Review Public Health*. 2001; 22:309–335.

76 U.S. Department of Health and Human Services. *The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity*. Rockville, MD: Office of the Surgeon General. 2001.