Colorado

Physical Activity and Nutrition
State Plan 2010

COPAN

Colorado Physical Activity and Nutrition Program

Living the Colorado Lifestyle

Colorado Department of Public Health and Environment

Developed by the

Colorado Physical Activity and Nutrition Coalition

Colorado Department of Public Health and Environment

Colorado Department
of Public Health
and Environment

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Chronic Disease Section. Colorado Physical Activity and Nutrition State Plan 2010.
Denver, Colorado: Colorado Department of Public Health and Environment, December 2004.

To the Citizens of Colorado:

The development of the *Colorado Physical Activity and Nutrition State Plan 2010* comes at a very important time for our state. The United States Surgeon General recently stated that obesity was the single greatest public health threat to the United States. We have an epidemic of obesity that is negatively affecting our health and our quality of life.

We should take pride that Colorado has the leanest residents in the nation, but we have to realize that our population is gaining weight at about the same rate as the rest of the country. However, unlike many other states, we have the opportunity to keep most of our population from becoming overweight or obese.

Awareness of the threat that obesity represents to public health has never been higher. Every school, community, and state in the United States knows that our population is getting more and more overweight and this, in turn, leads to more diabetes, heart disease, and cancer. People are looking for a solution to obesity. How do we keep everyone from becoming overweight?

The *Colorado Physical Activity and Nutrition State Plan 2010* was developed to show the specific steps that can be taken right now to address the obesity epidemic. There is an urgent need for action, and this *Colorado Physical Activity and Nutrition State Plan 2010* shows us how to begin. Who is positioned better than Colorado to show the rest of the nation how to tackle obesity?

This plan was developed with input from the members of the Colorado Physical Activity and Nutrition Coalition. This group worked tirelessly to identify and describe programs and plans that will stop weight gain and improve health in our state. On behalf of the Coalition, we invite you to join us in fighting overweight and obesity, and to make Colorado the healthiest and the leanest state in the nation.

In good health,

James O. Hill

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EXECUTIVE SUMMARY

The mission of the Colorado Department of Public Health and Environment's Colorado Physical Activity and Nutrition Program is to prevent obesity and related chronic diseases, and to promote healthy lifestyles for all Coloradans. The Colorado Physical Activity and Nutrition Program coordinates the Colorado Physical Activity and Nutrition Coalition, a group of over 450 public and private partners that work together to design, implement, coordinate, and evaluate statewide interventions that will be effective, widely accepted, and culturally appropriate.

Through the Coalition, organizations with an interest in improving Coloradans' dietary habits and increasing their physical activity work together successfully to avoid duplication of efforts. One of the Coalition's main charges is to develop and implement the *Colorado Physical Activity and Nutrition State Plan 2010.*

The plan addresses education, community outreach, policy, and environmental support in schools, worksites, health care settings, and communities. There are 11 task forces that make up the Coalition. The 5 A Day, Active Community Environments, Health Disparities, Provider Education, and Surveillance and Evaluation Task Forces provide a framework, based on subject matter, to support the six life-span task forces. The six life-span task forces include: Breastfeeding

Promotion, Early Childhood (birth-five years), School Site (K-12), College, Worksite, and Older Adult. These eleven task forces together form a comprehensive structure to address obesity prevention in Colorado.

Private and public partners utilize the Colorado Physical Activity and Nutrition State Plan 2010 for statewide planning, development, and implementation of physical activity and nutrition interventions. Coalition task forces work to develop and implement the strategies within the plan.

The Colorado Physical Activity and Nutrition Program and the Coalition identified the national program, *Healthy People 2010,* to serve as the framework for the plan's efforts as both entities are committed to achieving *Healthy People 2010's Objectives* for obesity. *Healthy People 2010*, developed by the U.S. Department of Health and Human Services, is a measurement tool designed to evaluate the nation's progress toward improving health and contains a set of health objectives for the nation to achieve over the first decade of the new century. Specific areas that apply to obesity and related chronic disease are physical activity, nutrition, overweight/obesity, diabetes, cardiovascular disease, arthritis, and cancer.

Based on guidance from *Healthy People 2010*, the Colorado Physical Activity and Nutrition Program and the Coalition identified the following key goals for the *Colorado Physical Activity and Nutrition State Plan 2010:*

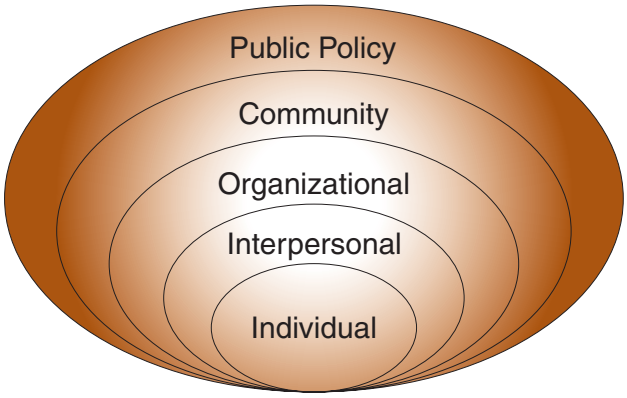
- Increase the percentage of Coloradans who are regularly physically active.
- Increase the percentage of Coloradans who consume at least five servings of fruits and vegetables a day.
- Increase the percentage of Coloradans who balance caloric intake with caloric expenditure.

- Decrease the number of hours that children and adults watch television.
- Increase the percentage of Colorado mothers who breastfeed for six months and beyond.
- Increase the proportion of Coloradans with a Body Mass Index (BMI) of less than 25.

INTRODUCTION

Theory and Model for Action

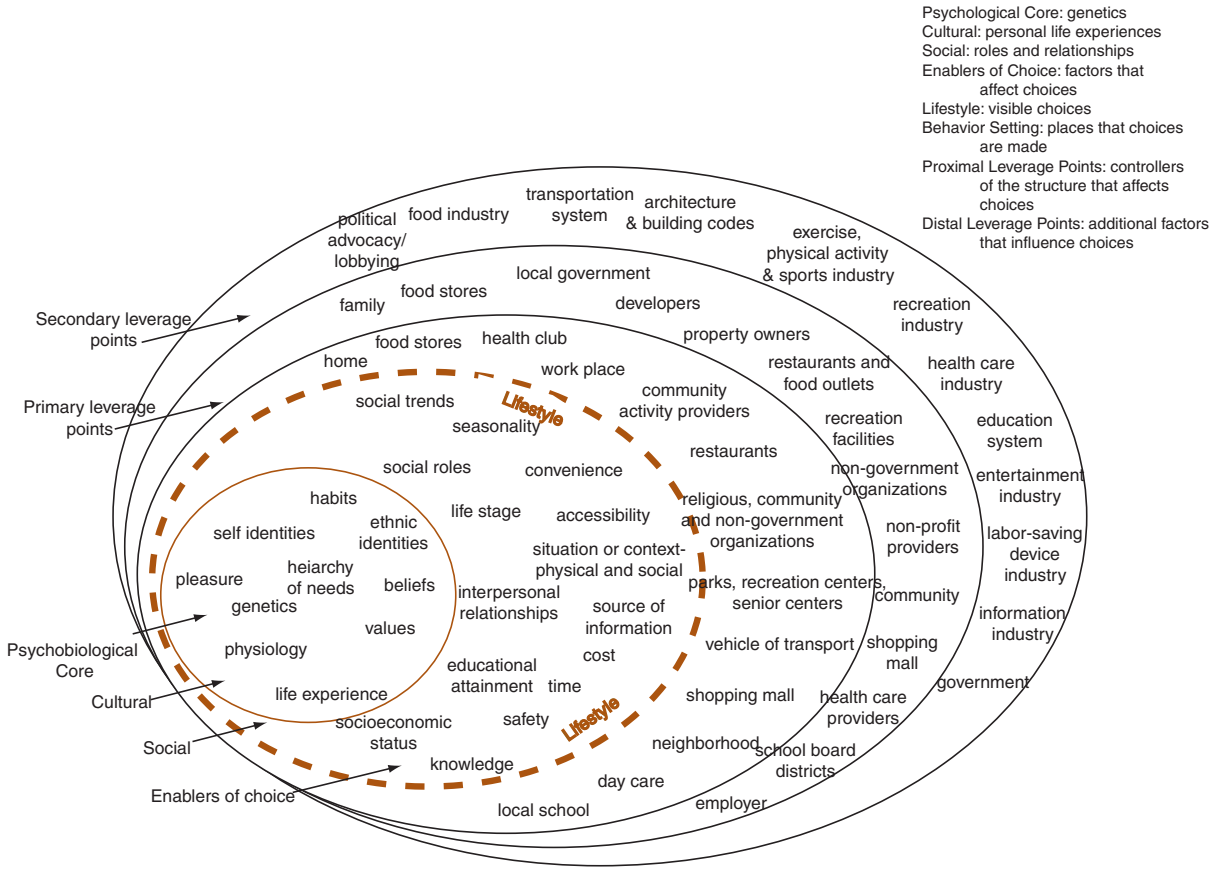
The *Colorado Physical Activity and Nutrition State Plan 2010* provides a statewide focus for obesity prevention, health promotion, and treatment activities such as physical activity and healthful eating. Apart from tobacco use, poor nutrition and physical inactivity are the second leading preventable causes of death in both the United States and Colorado. The Program will collaborate with existing service and health organizations to accomplish the goals, objectives, and strategies outlined in the plan. The strategies to reduce obesity and overweight in Colorado will be targeted to reach children, adolescents, and adults spanning all age groups, races, and socioeconomic classes. According to the Socioecological Model, individual behavior can be influenced at multiple levels: individual, interpersonal, organizational, community, and public policy. The model combines individual behavior with social and physical environments. The strategies in the plan recognize the level of self-responsibility that individuals have to take for positive lifestyle change and the outside forces through schools, worksites, and community settings that influence individual behavior.



Socioecolological Model

The figure on the following page, Framework for Determinants of Physical Activity and Eating Behavior, illustrates different factors that influence an individual's food choice or level of physical activity. The diagram demonstrates the importance of the environment in shaping individual behavior and how to utilize different approaches to affect behavior changes. Multiple factors affect individual choices; therefore, implementing environmental and policy changes will result in a larger societal impact. When looking at the many factors that contribute to why people are not physically active—such as lack of pleasure, habits, interpersonal relationships, cost, time, convenience, work, child care, family, and lack of recreation facilities—strategies and policies must be implemented to assist individuals with incorporating physical activity into their daily lives. For example, one strategy employs an intervention that promotes walking 2,000 additional steps per day. Walking an additional 2,000 steps is inexpensive, requires minimal additional time, and is an activity individuals can do with family, friends, or coworkers. Environmental and public policies that support the 2,000 steps program can be implemented to influence healthy behavior. Such policies may include using point-of-decision prompts to promote stair use, expanding and promoting use of walking and bicycle trails, extending lunch hours to allow time for physical activity, and increasing school physical education programs. Using the perspective of the Socioecological Model, an individual's action toward healthy behavior is supported by organizational and policy change.

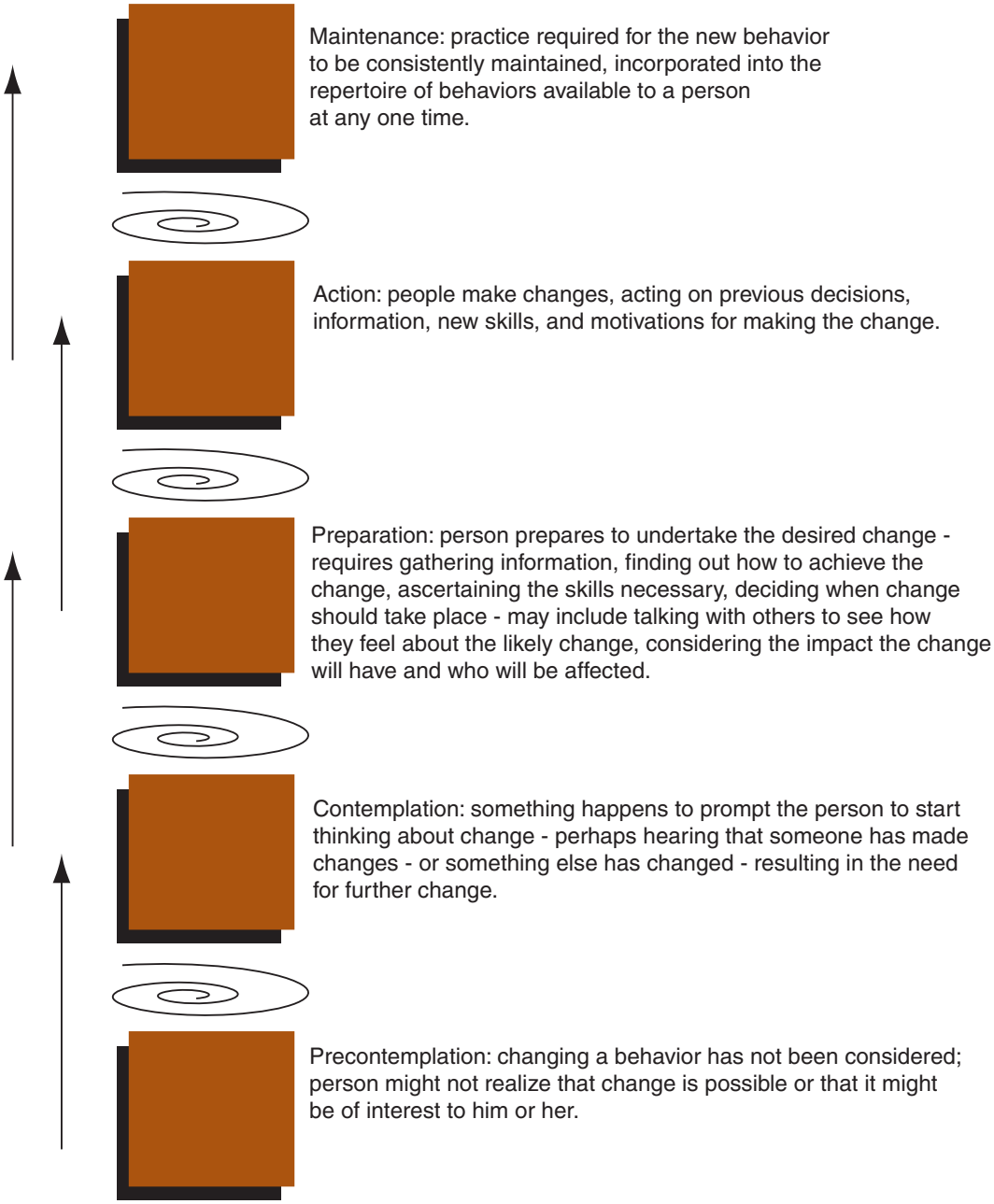
Framework for Determinants of Physical Activity and Eating Behavior



Source: The Partnership to Promote Healthy Eating and Active Living

The Transtheoretical Model of Behavior Change describes the five stages of behavior change. People can enter and exit stages at anytime, that is, pre-contemplation, contemplation, preparation, action, and maintenance. By using the Transtheoretical Model of Behavior Change and the ecological model as guiding factors for interventions, the Colorado Physical Activity and Nutrition Program and the Coalition will implement comprehensive strategies that will influence behaviors in larger populations. Changes must occur in the physical and environmental settings in which one works and lives to assist with the adoption of healthier lifestyles.

Transtheoretical Model of Behavior Change



Source: Prochaska and Diclemente, Journal of Clinical Consulting and Clinical Psychology, Edition 51: 1983.

The Role of the Environment

Healthy People 2010 recognizes that obesity is the consequence of an intricate combination of social, behavioral, cultural, environmental, physiological, and genetic factors. Since the epidemic of obesity emerged in the 1980s, the social and physical environment has been radically altered.

The physical and social environment in which people live has a commanding influence on individual behaviors—promoting some, while constraining others. For example, television commercials and media messages, "super-sized" portions, and promotional pricing encourage the consumption of food that is high in calories, sugar, and fat, and low in nutrition. Convenience stores and fast-food restaurants also make high-calorie foods readily available and accessible. Meanwhile, opportunities to burn surplus calories are hindered by technological advances (e.g., remote controls, escalators) and poor infrastructure (e.g., lack of sidewalks, unsafe recreational areas). The marketing of unhealthy foods and encouraging Americans to eat larger portions begins at an early age. Each year, the average child watches 10,000 food commercials, 95 percent of which are for candy, fast food, soft drinks, and sugared cereals. The food industry spends about $11 billion annually to advertise its products and another $22 billion on other consumer promotions. Alternatively, the National Cancer Institute spends about $1 million each year on its 5 A Day campaign to increase the consumption of fruits and vegetables.

As society has moved to a service and information economy, occasions for physical activity during work hours and at school have decreased. Most people avoid regular and vigorous physical activity during leisure time, and labor-saving devices limit their ability to burn calories during the daily routine of living. Increased computer use also has led to increasingly sedentary lifestyles. At work, the promotion of physical activity opportunities can lower stress, increase productivity,

and improve the health of workers. It also can reduce health care costs and reduce absenteeism. In schools, physical education and sound nutrition programs help students achieve, both physically and academically.

In communities, increased reliance on the automobile has replaced walking, biking, and other modes of transportation that expend more energy. One-fourth of the trips people make are less than one mile from their house, yet 75 percent of those trips are made by car. Dangerous neighborhoods, or the perception of danger, and the lack of community infrastructures, such as parks and trails have restricted outdoor activities. More parents, for safety reasons, are driving children to school, instead of allowing them to walk.

Moreover, children and adults spend more time at home in front of the television, playing video games, or on the computer, instead of participating in physical activities. Individuals can affect their energy balance by increasing the amount of walking in their daily routines. The development of pedestrian-friendly residential areas, with connecting sidewalks or paths, can encourage more activity in neighborhoods. Neighborhood integration of homes and businesses that encourage walking, bicycling, and convenient shopping, can lower traffic, promote a sense of community, and promote health.

Recognizing the multitude of barriers, it is important to acknowledge and identify an individual's place in the behavior change process, strategies presented throughout the *Colorado Physical Activity and Nutrition State Plan 2010* are designed to assist individuals in moving along the stages accordingly. Behavior change is a process that people move through at differing rates, depending on their readiness to change.

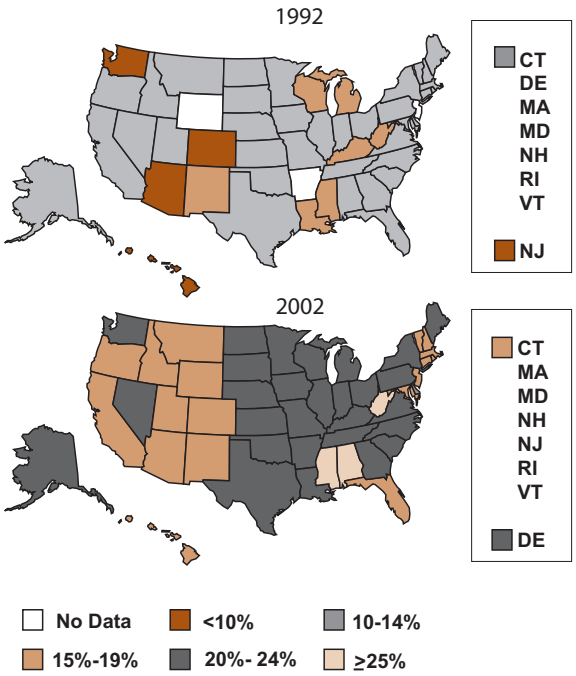
THE BURDEN OF OBESITY

Overweight and Obesity in the United States

U.S. Adults

The prevalence of overweight and obesity in the United States has increased steadily over the past 20 years, to the point that it is now considered an epidemic, with 64 percent of adults nationwide being overweight or obese (Figure 1). This trend prompted the publication of *The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity 2001* to serve as a galvanizing influence for national response.

Figure 1. Prevalence of Obesity* Among U.S. Adults, 1992 and 2002 BRFSS



*BMI >30 lbs Overweight for 5'4" Person.
Source: Centers for Disease Control and Prevention, Behavioral Risk Factor Surveillance System.

The causes of the general increase in body weight are varied and complex. The basic balance of energy consumption and energy

expenditure has been affected by labor and activity reductions from advances in technology, increases in portion size, the proliferation of unhealthy prepackaged foods, and environmental factors that may discourage physical activity. Eating too many calories and decreasing physical activity have fueled the current weight control crisis. Moreover, excess body weight elevates health care costs and is a key cause of death resulting from cardiovascular disease, arthritis, disability, diabetes, cancer, and asthma.

U.S. Children and Adolescents

According to data from the 1999-2000 National Health and Nutrition Examination Survey (NHANES), the prevalence of overweight was 10.4 percent for 2 to 5-year-olds, 15.3 percent for 6 to 11-year-olds, and 15.5 percent for 12 to 19-year-olds. These estimates have increased nearly 50 percent compared to 1988-1994 NHANES data, and have tripled (for children ages 6 to 11 years) or doubled (for adolescents ages 12 to 19 years) compared to 1971-1974 NHANES data. The 1999-2000 NHANES results also highlighted higher prevalence of overweight for Hispanic and black adolescents.

Overweight and Obesity in Colorado

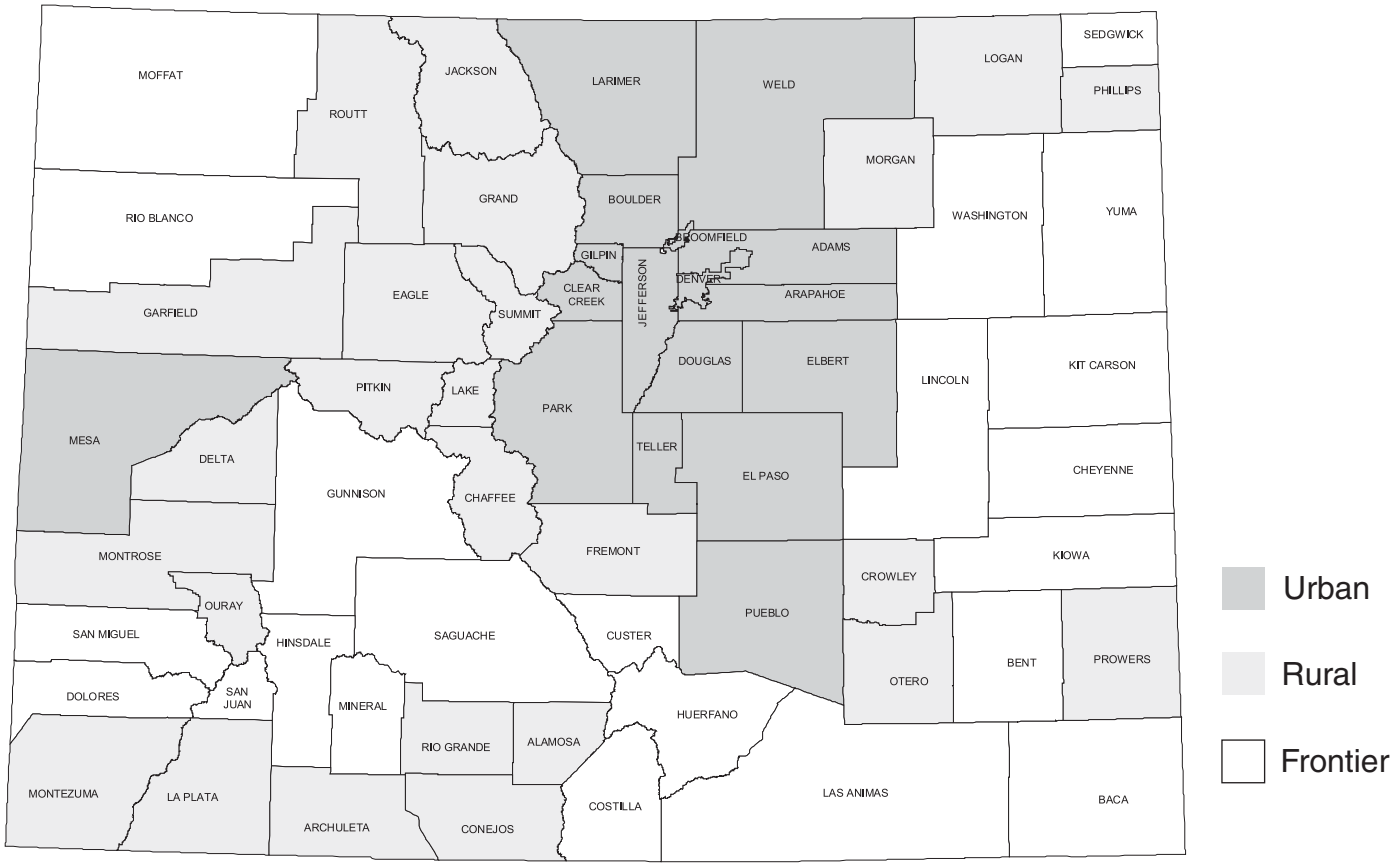
Overview of Colorado's General Population

Relative to national averages, Colorado's population is young, healthy, rapidly growing, and increasingly wealthy. With a population of approximately 4.3 million residents, Colorado is home to only 1.5 percent of the United States' population.

Geographically, Colorado is a large state with a population density of 39.2 persons per square mile, compared to the national population density of 77.1. Colorado is comprised of 64 counties, 29 of which are considered rural, and 23 of which are considered frontier (fewer than six people per square mile).

Eighty percent of Colorado residents are concentrated in 10 metropolitan counties on the east side of the Rocky Mountains, in a region known as the Front Range. The remaining 20 percent of residents are scattered throughout the state's mountains, eastern plains, and western plains. This population distribution creates challenges for obesity prevention programs and health service delivery in rural areas.

Figure 2. Urban, Rural, and Frontier Counties in Colorado



Colorado boasts the lowest obesity level of any state; however, increasing prevalence of obesity and overweight may mean this status will end. The factors that influence excess body weight in a population are complex, involving cultural, socioeconomic, and environmental issues. Colorado is different from the United States as a whole on a number of demographic characteristics.

Colorado has a lower median age and a population distribution shifted to younger ages. It also has a lower proportion of blacks, and a higher proportion of Hispanics and non-Hispanic whites, compared to the U.S. population. In terms of socioeconomic factors, Colorado has considerably higher levels of education and household income than the U.S. population, both of which are associated with the prevalence of normal body weight.

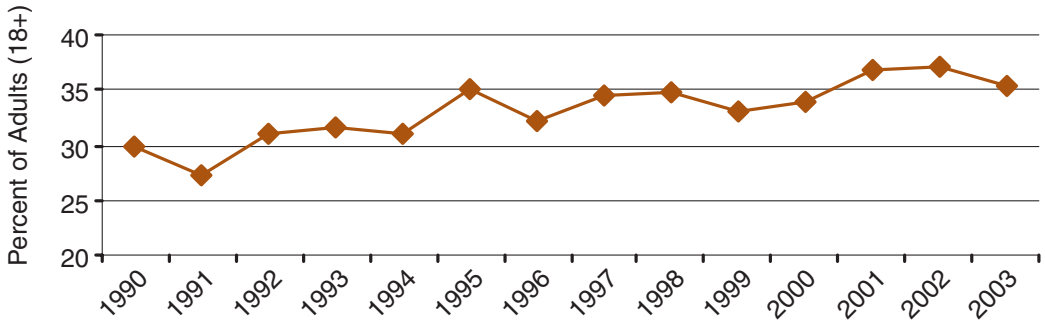
Prevalence of Overweight and Obesity in Colorado

For many years, Colorado has had one of the lowest prevalence of obesity rates in the nation, although these rates have increased along with the rest of the country. If current trends continue, by 2020, 47 percent of Coloradans will be overweight, 29 percent will be obese, and only 24 percent of the population will be at a healthy weight.

Colorado Adults

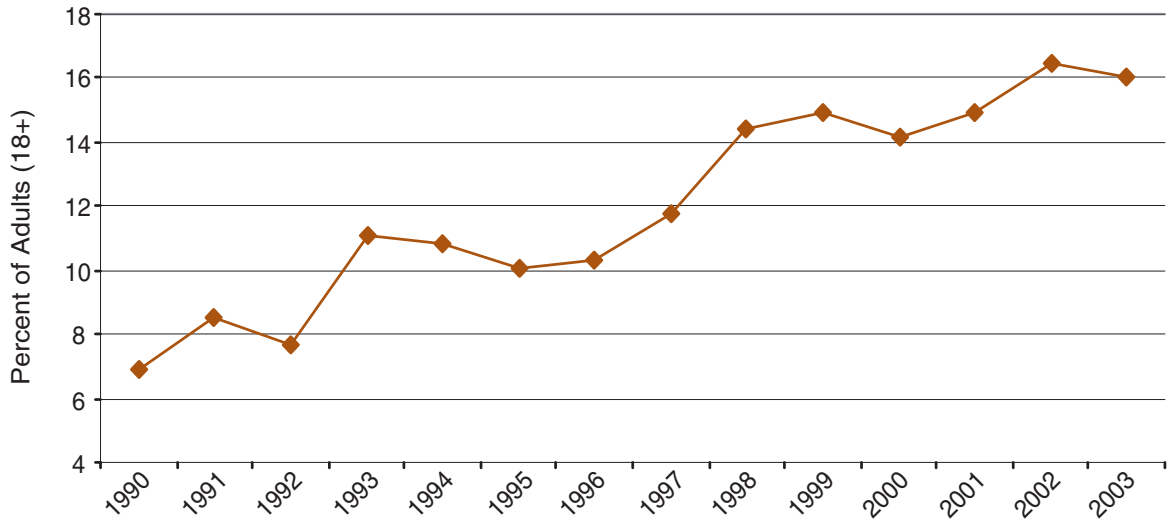
The prevalence of overweight and obesity among Colorado adults 18 years and older has been increasing steadily since 1990 (Figures 3 and 4). However, a slight decrease was seen between 2002 and 2003. It is too soon to tell if this decrease is a leveling off, or the beginning of a downward trend.

Figure 3. Prevalence of Overweight,* 1990-2003 Colorado BRFSS



*Overweight = BMI 25.0-29.9

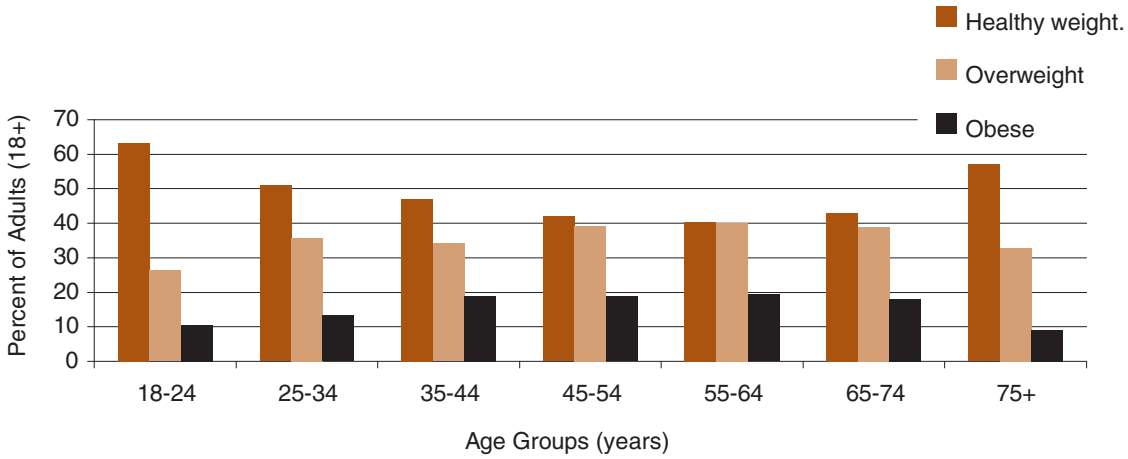
Figure 4. Prevalence of Obesity,* 1990-2003 Colorado BRFSS



*Obese = BMI 30.0+

In 2003, only 49 percent of Colorado adults were at a healthy weight (excluding people who were underweight). As shown in Figure 5, those who were younger (<35 years old), and those who were older (75+), were most likely to be at a healthy weight. In 2003, 16.0 percent of Colorado adults were obese, just above the national *Healthy People 2010 Objective 19-2* of 15 percent of adults being obese.

Figure 5. Prevalence of Overweight and Obesity by Age Group, 2003 Colorado BRFSS

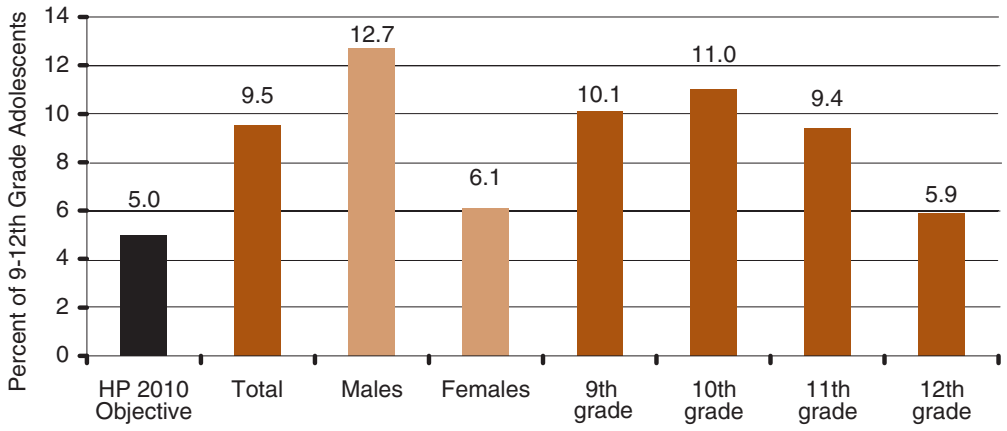


Colorado Children and Adolescents

In Colorado, data on adolescents in grades 9-12 are provided by the Youth Risk Behavior Survey, which uses self-reported height and weight data applied to age and sex-specific growth charts. Overweight on the Youth Risk Behavior Survey is defined as a Body Mass Index greater than or equal to the 95th percentile for growth by age and sex, which is basically equivalent to a Body Mass Index of 30+ among adults.

As shown in Figure 6 using Youth Risk Behavior Survey data, 9.5 percent of Colorado adolescents in grades 9-12 were categorized as overweight in 2003. Males were more likely to be overweight than females, and the proportion of those who were overweight was highest in the earlier grades. An additional 10.9 percent of 9-12th graders surveyed were at risk for becoming overweight,

Figure 6. Overweight* Colorado Adolescents in Grades 9-12 by Gender and Grade, 2003 Colorado YRBS



*Overweight: BMI Greater Than or Equal to the 95th percentile for Growth by Age and Sex

measured as greater than or equal to the 85th percentile by age and sex. *Healthy People 2010 Objective 19-3b* sets a target of five percent for the prevalence of adolescents being overweight or obese. This goal is far below the combined prevalence of overweight and at risk for overweight among adolescents in Colorado (20.4 percent).

There are currently no population-based data on overweight and obesity for children in Colorado. Colorado is in the process of conducting the Colorado Child Health Survey which will provide state-level estimates of physical activity levels, nutrition, and Body Mass Index for children ages 1-14. These data will be available in mid-2005.

Health Complications and Mortality

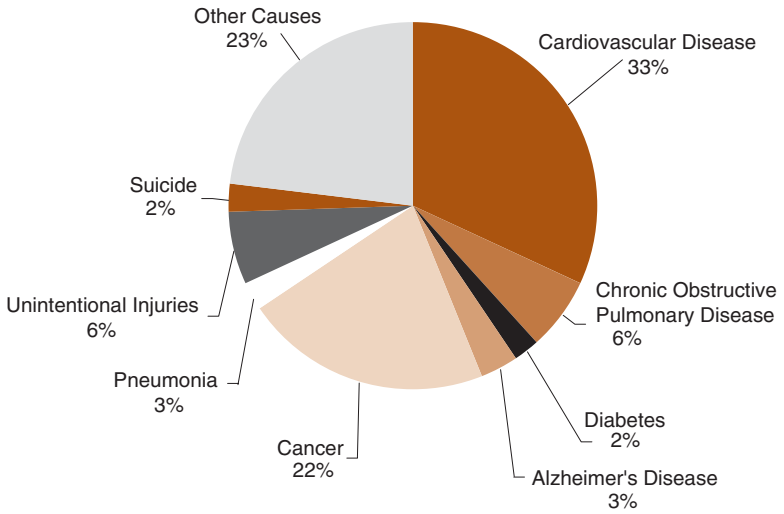
Obesity plays a role in the leading causes of death, including cardiovascular disease, diabetes, cancer, and asthma. At a minimum, obesity can be associated with more than one-third of premature deaths in Colorado and approximately

400,000 premature deaths nationwide each year. Obese persons (Body Mass Index 30+) have a 50-to-100 percent greater risk of premature death from all causes compared to persons with a Body Mass Index of 20 to 25.

Cardiovascular Disease

Excess body weight is a serious challenge to cardiovascular health. Cardiovascular disease is the number one killer of Americans. It is the leading cause of death in Colorado, claiming the lives of more than 9,300 residents in 2002 and accounting for 33 percent of all deaths (Figure 7). Excess body weight contributes to high blood pressure and increases the risk for developing diabetes, both of which are risk factors for cardiovascular disease.

Figure 7. Underlying Cause of Death, Colorado Residents, 2002



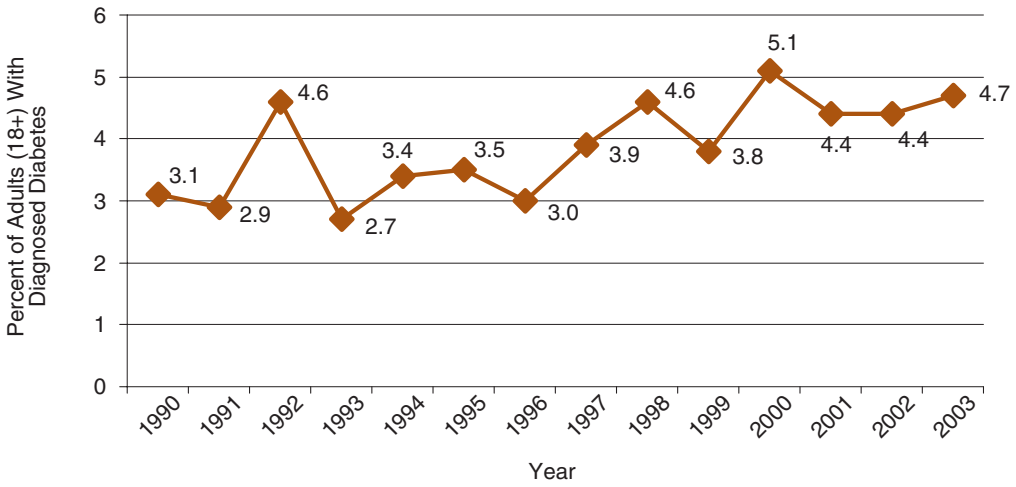
Source: Colorado Department of Public Health and Environment, Health Statistics Section, 2002

Diabetes

There are two main types of diabetes, a disease that impairs the body's ability to use food. Type 1 diabetes is an immune-mediated condition leading to Beta-cell destruction and absolute insulin deficiency. This type of diabetes accounts for 5 to 10 percent of all diagnosed cases of diabetes. Type 2 diabetes

accounts for 90 to 95 percent of all diagnosed cases of diabetes. Although the exact cause is unknown, it is associated with older age, obesity, family history of diabetes, history of gestational diabetes, impaired glucose metabolism, physical inactivity, and race/ethnicity. In both the United States and Colorado, the prevalence rate for diabetes is increasing as the population becomes older and more overweight (Figure 8).

Figure 8. Diagnosed Diabetes* Among Colorado Adults, 1990-2003 Colorado BRFSS



*Excludes Gestational Diabetes

Adults 40 years and older, who are overweight or obese, are at increased risk of developing Type 2 diabetes. Persons who are overweight or obese statistically are more likely to be diagnosed with diabetes than persons of a healthy weight.

Cancer

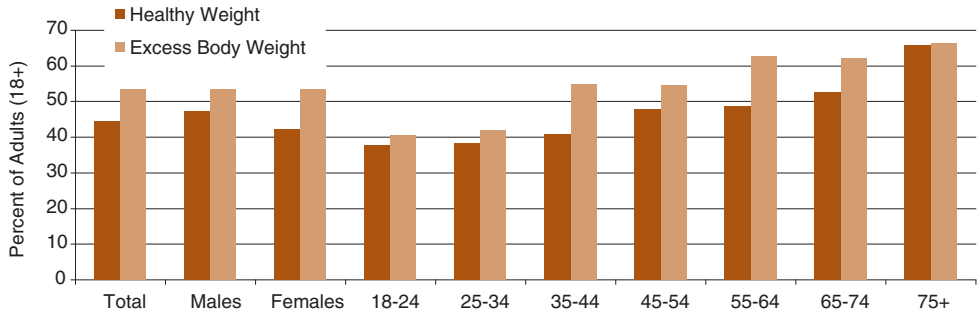
Excess body weight increases the risk of certain cancers, such as breast, colon, kidney, gallbladder, prostate, cervical, ovarian, and esophageal. Persons with excess body weight have lower rates of cancer screening. The practical issues of screening and treatment for persons with excess body weight increase the risk of missed cancers, and subsequently more-advanced cancers upon detection. Overweight women are more likely to die from breast cancer due to the

increased difficulty of obtaining screening examinations and being less likely to seek examinations. Accordingly, about 30 percent of breast cancer deaths may be attributable to overweight.

Osteoarthritis

Joints and connective tissue are injured more often and deteriorate more quickly from excess body weight. Diminished activity due to joint discomfort can lead to stiffness and a decreased range of motion. The cumulative effects of arthritis can lead to decreased physical activity, thereby exacerbating the cycle of excess weight and physical limitations (Figure 9). Overweight and obese people were more likely to report pain, stiffness, or swelling in or around a joint, and also were more likely to be diagnosed with arthritis by a doctor, than healthy weight persons.

Figure 9. Had Pain, Aching, Stiffness, or Swelling in or Around Joint in the Past 30 Days, by Body Mass Index Based Weight Group, 2003 Colorado BRFSS

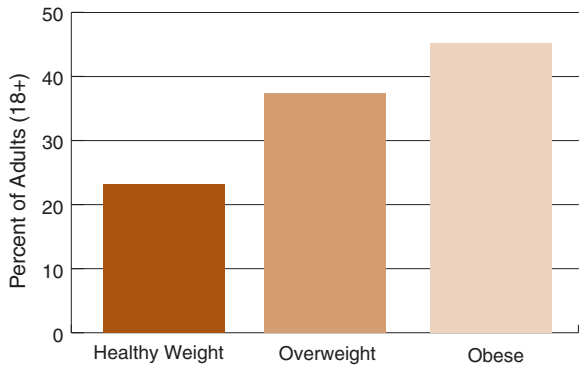


*Healthy Weight=BMI 18.5-24.9; Overweight=BMI 25.0-29.9; Obese=BMI 30.0+

High Cholesterol

High cholesterol is more prevalent among overweight or obese adults than among healthy weight adults (Figure 10). High blood cholesterol is a leading risk factor for heart disease, as excess cholesterol in the bloodstream forms plaque on artery walls, leading to restricted blood flow, angina, or a possible heart attack. Blood cholesterol can be decreased through diet or physical activity. Regular physical activity also may lower LDL cholesterol and raise HDL

Figure 10. Coloradans Ever Told They Have High Cholesterol by BMI-Based Weight Group*, 2003 Colorado BRFSS



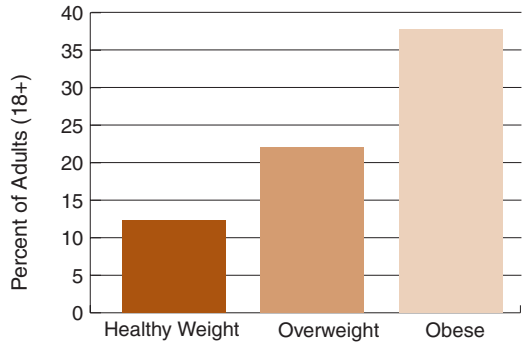
*Healthy Weight=BMI 18.5-24.9; Overweight=BMI 25.0-29.9; Obese=BMI 30.0+

cholesterol levels. Cholesterol intake should be limited to 300 mg/day for the general population, and 200 mg/day for those with heart disease or risk factors.

High Blood Pressure

High blood pressure increases the heart's workload, causing it to enlarge and weaken over time. In 1999, high blood pressure killed 42,997 Americans, and contributed to the deaths of another 227,000. In 2003, 20 percent of Colorado adults ages 18 and older reported they had been told by a health care professional that they had high blood pressure (Figure 11).

Figure 11. Coloradans Ever Told They Have High Blood Pressure by BMI-Based Weight Group*, 2003 Colorado BRFSS



*Healthy Weight=BMI 18.5-24.9; Overweight=BMI 25.0-29.9; Obese=BMI 30.0+

The prevalence of ever being diagnosed with high blood pressure increases with higher Body Mass Index categories. There is a strong association between excess body weight and high blood pressure, which often is influenced by diet and genetics. When high blood pressure exists with obesity, the risk of heart attack or stroke increases several times.

Costs Associated with Overweight and Obesity

From direct and indirect health care costs, the nationwide expenses attributable to obesity totaled $117 billion in 2000. Direct health care costs refer to preventive, diagnostic, and treatment services, including physician visits, tests, medications, and hospital care. Indirect costs are the value of wages lost by people unable to work because of illness or disability, and the value of future earnings lost by premature death. Excess body weight increases losses in productivity from health complications, as well as decreases years of earned wages due to premature death. From the 2000 estimate, the costs derived from overweight and obesity prevalence in Colorado are $657 million in direct costs and $607 million in indirect costs.

Modifiable Risk Factors

Research into the risk factors associated with excess body weight has illuminated several key modifiable lifestyle factors, including physical inactivity and excess caloric intake. Improving diet and increasing physical activity can prevent and reverse weight gain and mitigate health problems due to excess body weight. There are measurable differences in selected health indicators according to weight status. People who are overweight or obese are significantly more likely to report having fair or poor health, consuming fewer than five or more fruits and vegetables a day, and being diagnosed with diabetes.

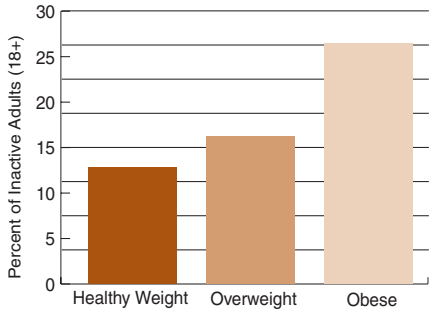
Physical Activity

Adults

Physical activity plays an important role in preventing excess body weight and the development of associated health conditions. Even moderate physical activity can help maintain a healthy weight, decrease blood pressure, and increase levels of "good" cholesterol (high-density lipoprotein, or HDL). Levels of physical inactivity in Colorado have been stable since 1990.

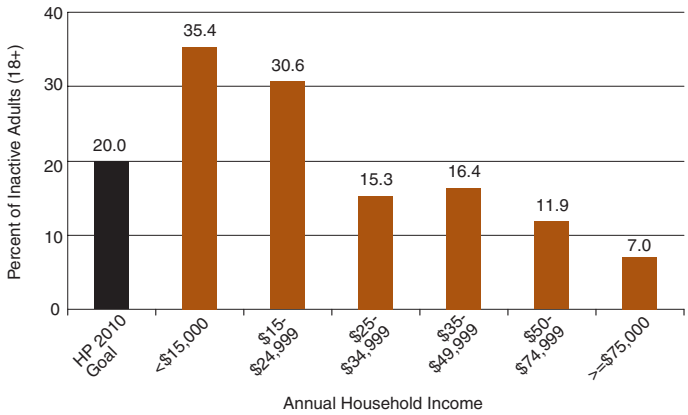
In 2003, 17 percent of Colorado adults ages 18 and older were inactive, which was slightly better than the *Healthy People 2010 Objective 22.1* of 20 percent of adults with no leisure-time physical activity. The prevalence of inactivity increases with higher body weight (Figure 12). Those adults with the lowest income levels had the highest level of inactivity (Figure 13).

Figure 12. Percentage of Physically Inactive Adults by BMI-Based Weight Group*, 2003 Colorado BRFSS



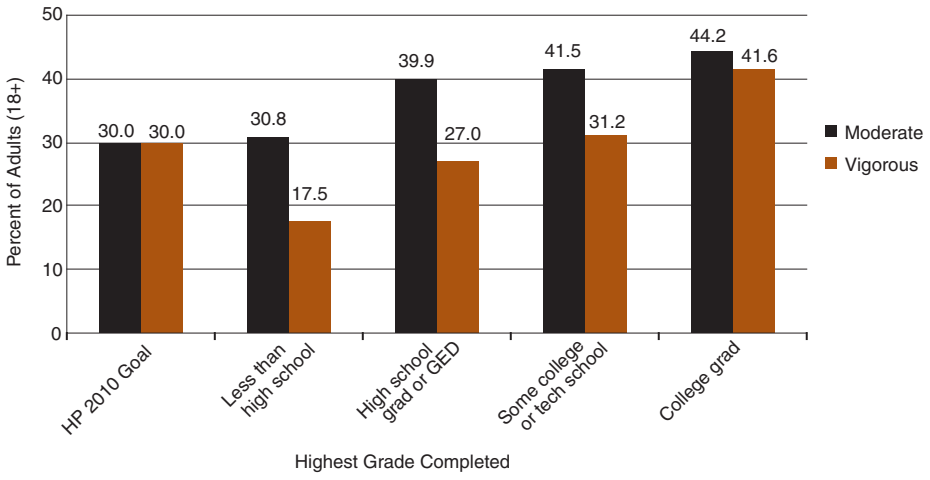
*Healthy weight=BMI 18.5-24.9, Overweight= BMI 25.0-29.9, Obese=BMI 30.0+

Figure 13. Percentage of Physically Inactive Adults by Annual Household Income Level, 2003 Colorado BRFSS



In 2003, 41.2 percent of Colorado adults (ages 18 and over) engaged in moderate physical activity for at least 30 minutes, five or more days per week. On the Behavioral Risk Factor Surveillance System, moderate activities are defined as those causing small increases in breathing or heart rate, while vigorous activities are defined as causing large increases in breathing and heart rate. Almost 33 percent of Coloradans engaged in vigorous activity in 2003, for 20 or more minutes per day, at least three or more times per week. Currently, Colorado meets the *Healthy People 2010 Objectives 22-2 and 22-3* for 30 percent of adults to have either moderate or vigorous physical activity. Adults with a high school degree or less education were less likely to exercise than their more-educated peers (Figure 14).

Figure 14. Colorado Adults who Engaged in Either Moderate or Vigorous Physical Activity by Educational Level, 2003 Colorado BRFSS



Adolescents

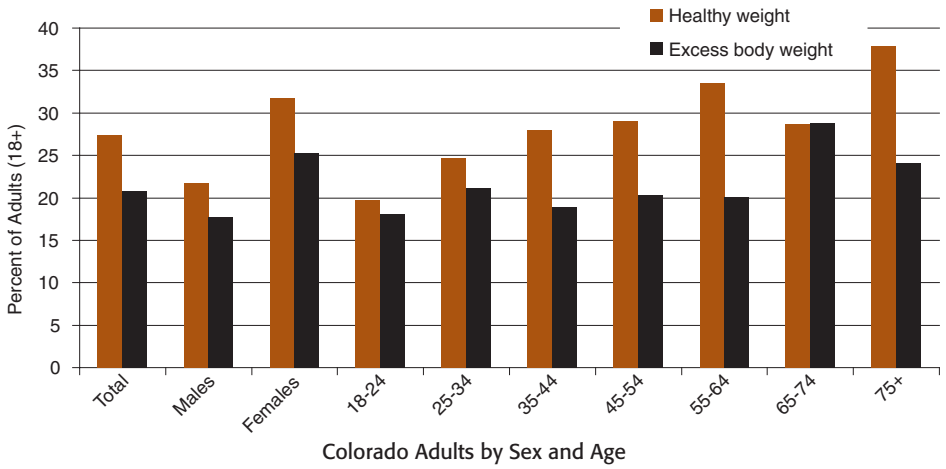
In 2003, 31 percent of Colorado adolescents participated in moderate physical activity five or more days per week, for at least 30 minutes. This is short of the *Healthy People 2010 Objective 22-6* of 35 percent of adolescents (grades 9 to 12) engaging in moderate physical activity for 30 or more minutes, five or more days a week. Males were more likely to exercise than females (37 percent vs. 25 percent respectively). Students in the 9th and 11th grade reported higher levels of physical activity than students in the 10th and 12th grades.

Fruit and Vegetable Consumption

Adults

An increase in fruit and vegetable consumption has been associated with a decreased risk of certain cancers, cardiovascular disease, and hypertension. Overweight or obese people are less likely to consume five or more fruits and vegetables each day. In 2003, 23.4 percent of Colorado adults consumed five or more servings of fruits and vegetables a day. Females were more likely than males to eat five servings of fruits and vegetables per day (29 percent vs. 20 percent), and consumption also increased with age (Figure 15).

Figure 15. Percent of Adults Consuming 5+ Fruits and Vegetables Per Day, by BMI-Based Weight Group, 2003 Colorado BRFSS



Adolescents

Among adolescents, 19 percent reported consuming five or more servings of fruits and vegetables a day. Though not directly comparable, the *Healthy People 2010 Objective 19-5* is 75 percent of persons ages 2 and older consuming two or more daily servings of fruit, and the *Healthy People 2010 Objective 19-6* is 50 percent of persons ages 2 and older consuming three or more daily servings of vegetables (with one-third being dark green or orange vegetables). Colorado appears to be quite short of this goal for fruit and vegetable consumption.

Terminology

For this report, the term "excess body weight" refers to persons who are above healthy weight, being either overweight or obese. Body Mass Index, calculated as a person's weight in kilograms divided by his/her height in meters squared, is used widely to gauge overweight and obesity, though it is a screening measure and does not measure body composition. Body Mass Index is used throughout this report to determine the prevalence of overweight and obesity. Among adults, "healthy weight" qualifies as a Body Mass Index of 18.5-24.9, overweight as a Body Mass Index of 25.0-29.9, and obese as a Body Mass Index of 30.0 or greater. The term "healthy weight" does not cover persons considered underweight, a Body Mass Index of 18.5 or less, and underweight will not be discussed in this report. For children and adolescents, overweight is indicated when Body Mass Index is at or above the 95th percentile of age and gender specific growth charts.

Surveillance

Progress in lowering the prevalence of overweight and obesity is gauged by the *Healthy People 2010* Objectives, referenced throughout this report. Both national and state estimates on overweight and obesity are presented, with an awareness of the limitations of each source. National data sources do not provide state or local estimates, and state estimates can be affected by small sample sizes and a reliance on self-reported data. The most recent year of data providing stable estimates is presented.

National estimates come from the National Health and Nutrition Examination Survey. These estimates are based on heights and weights measured in a clinical setting using a standardized protocol, and provide a gold standard for prevalence estimates on overweight and obesity for the country.

Data on Colorado residents ages 18 and older come from the Colorado Behavioral Risk Factor Surveillance System, an ongoing statewide random-digit-dial telephone-based survey on health behaviors and preventive health practices. It has been done on a monthly basis in Colorado every year since 1990. Data on Colorado adolescents in grades 9-12 are provided by the Youth Risk Behavior Survey, a school-based survey conducted biennially in Colorado since 1993. Youth Risk Behavior Survey data for 2003 are unweighted due to insufficient levels of school participation in the survey for the state, and as such, estimates cannot be generalized to the state as a whole for the 9-12th grade population. The estimates are presented to give a rough prevalence for adolescents. Heights and weights are self-reported in both surveys.

HEALTH DISPARITIES BY RACE AND ETHNICITY

U.S. Population Data

Based on 1999-2000 National Health and Nutrition Examination Survey data for the nation, 67.6 percent of adult non-Hispanic white males are overweight or obese, compared to 58.6 percent of black men, and 71.9 percent of Hispanic men. For women nationally, 58.1 percent of non-Hispanic white women were overweight or obese, compared to 77.2 percent of black women, and 69.5 percent of Hispanic women.

The differences in excess body weight prevalence among racial and ethnic groups can be explained partially by socioeconomic forces. Among all groups nationwide, women of lower socioeconomic status, with incomes less than or equal to 130 percent of the federal poverty threshold, are approximately 1.5 times more likely to be obese than women of higher socioeconomic status.

Colorado Population Data

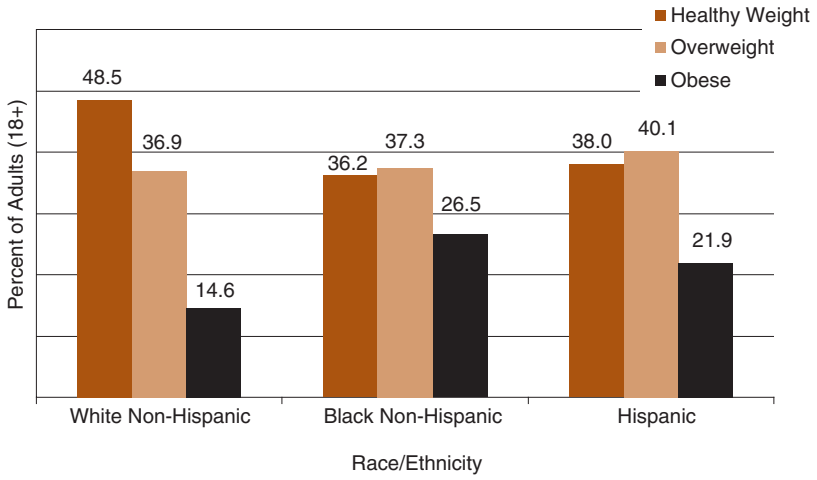
In Colorado from 2001 to 2003, black adults had the highest prevalence of excess body weight among the major racial/ethnic groups (63.8 percent), followed by Hispanics (62.0 percent), and non-Hispanic whites (51.5 percent). According to Figure 16, all racial/ethnic groups had similar proportions in the

overweight category, but both blacks and Hispanics had much higher proportions in the obese category than non-Hispanic whites.

As shown in Figure 17, blacks and Hispanics were statistically significantly more likely to be obese than non-Hispanics, and black and Hispanic females were statistically significantly more likely to be obese than non-Hispanic white females.

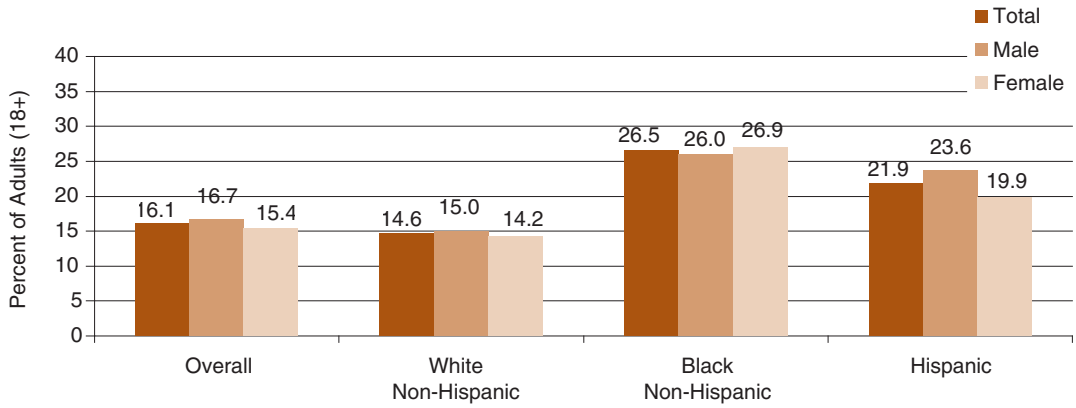
Being overweight or obese can result in many chronic diseases including diabetes, cardiovascular disease, arthritis, asthma, and cancer. When examining the

Figure 16. Race/Ethnicity by Weight Group, 2001-2003 Colordo BRFSS



*Healthy Weight=BMI 18.5-24.9; Overweight=BMI 25.0-29.9; Obese=BMI 30.0+

Figure 17. Prevalence of Obesity by Race/Ethnicity and Sex, 2001-2003 Colorado BRFSS



*Healthy Weight=BMI 18.5-24.9; Overweight=BMI 25.0-29.9; Obese=BMI 30.0+

consequences of chronic disease by race and ethnicity, communities of color consistently have higher rates of disability and death than the general population.

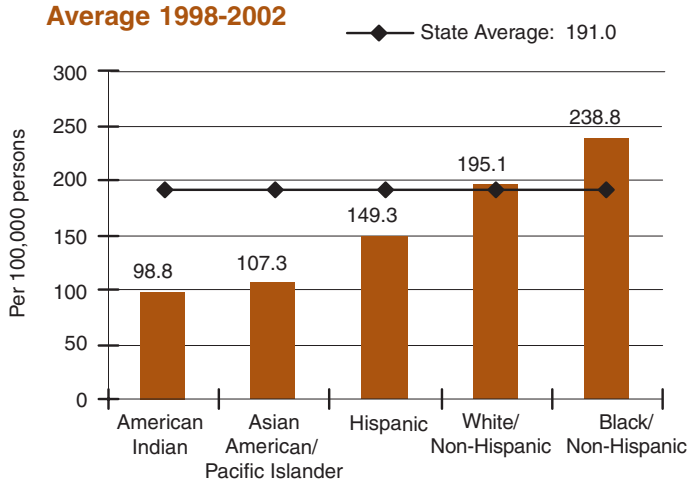
For example, in Colorado, the black population has the highest death rates from heart disease, cerebrovascular disease, cancer overall, and cancers of the breast, colon/rectum, and prostate. The Hispanic population has the highest death rate from diabetes and cervical cancer and the highest incidence of colorectal cancer and cervical cancer.

Heart Disease

Obesity is a leading risk factor for heart disease. In Colorado, the black population consistently has the highest rate of death from heart disease, statistically higher than all other groups. The death rate for the black population is 1.25 times the state average rate of 191 per 100,000 persons (Figure 18).

The *Healthy People 2010 Objective* for heart disease is to reduce deaths to no more than 166 per 100,000 persons.

Figure 18. Heart Disease Death Rates: Age-Adjusted, Colorado Annual Average 1998-2002



Source: Health Statistics Section, Colorado Department of Public Health and Environment, Vital Statistics Dataset

Data Methodologies and Limitations

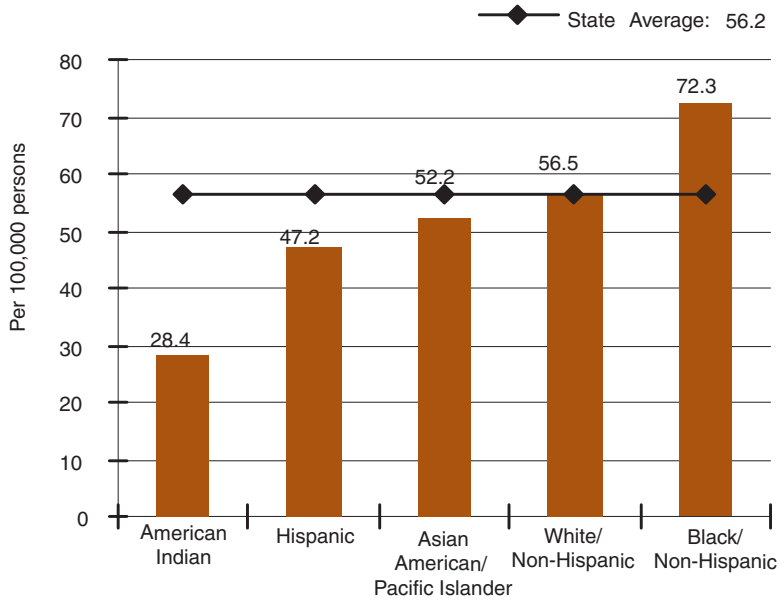
- All death rates have been age-adjusted to the year 2000 U.S. population standard.
- Multiple years of data have been combined for an annual average, in order to analyze small groups by race and ethnicity or to examine less common diseases/conditions.
- The term Hispanic is used as an Ethnicity in accordance with the U.S. Census definition of people who themselves or whose ancestors originated from countries that speak Spanish as the primary language.
- Data limitations do exist, especially with regard to the categories "American Indian" and "Asian American/Pacific Islander":
    1. Because of small population sizes in Colorado, rates for these populations can vary widely, only taking a few events to significantly increase a rate. Also, due to a small population size, data are not always available so these categories have been left off some charts.
    2. Another limitation, identified by the Centers for Disease Control and Prevention, is the problem of "race" being inaccurately reported on death certificates. There are instances when American Indians, Asian Americans and Pacific Islanders are mistakenly identified as White. While the numbers of these events are too small to influence the White population's data, this misreporting results in artificially lowering death rates in American Indians and Asian American/Pacific Islanders by creating a smaller numerator in the rate calculation. Several studies have indicated that the misreporting occurs most often among American Indians, with as many as 21-26 percent of deaths misidentified.
    3. A change in the U.S. Census methodology for 2000 also creates data issues in terms of including multiracial individuals under discreet racial headings (i.e., Black, White, etc). Under the new methodology, the "American Indian" population expanded the most in terms of numbers. This resulted in a significantly larger population than with the methodology used for the 1990 Census. Consequently, the denominator used to calculate the death rates for 2000-2002 is much larger, which results in lower death rates than would be expected using the 1990 Census methodology. Due to these data limitations, death rates for American Indians and Asian Americans in this report should be interpreted with caution.
- Finally, in accordance with the Centers for Disease Control and Prevention, this report also recognizes that race and ethnicity are social constructs representing distinct histories and cultures of groups within the United States, and that they are not valid biological or genetic categories.

Cerebrovascular Disease

There is a strong association between excess body weight and high blood pressure—a risk factor for cerebrovascular disease (stroke). In Colorado, the death rate of cerebrovascular disease is statistically highest in the black population, at 1.28 times higher than the state average rate of 56.2 per 100,000 persons (Figure 19).

The *Healthy People 2010 Objective* for cerebrovascular disease is to reduce deaths from stroke to no more than 48 per 100,000 persons.

Figure 19. Cerebrovascular Disease Death Rates: Age-Adjusted, Colorado Annual Average 1998-2002



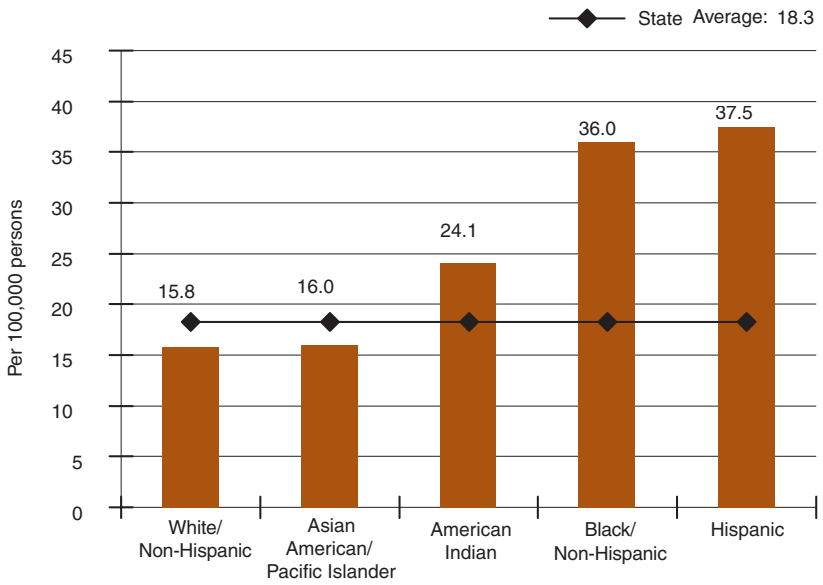
Source: Health Statistics Section, Colorado Department of Public Health and Environment, Vital Statistics Dataset

Diabetes

The Hispanic, black, and American Indian populations are all disproportionately affected by diabetes. In Colorado, the diabetes death rate is statistically highest in the Hispanic and black populations, at close to twice the state average rate of 18.3 per 100,000. The rate for American Indians is 1.3 times the state average rate (Figure 20).

Disease management through health education, behavior modification, and drug therapies can reduce complications and deaths from diabetes. However, Hispanics, blacks, and American Indians are less likely to have a regular source of health care than other racial and ethnic groups.

Figure 20. Diabetes Death Rates: Age-Adjusted, Colorado Annual Average 1998-2002

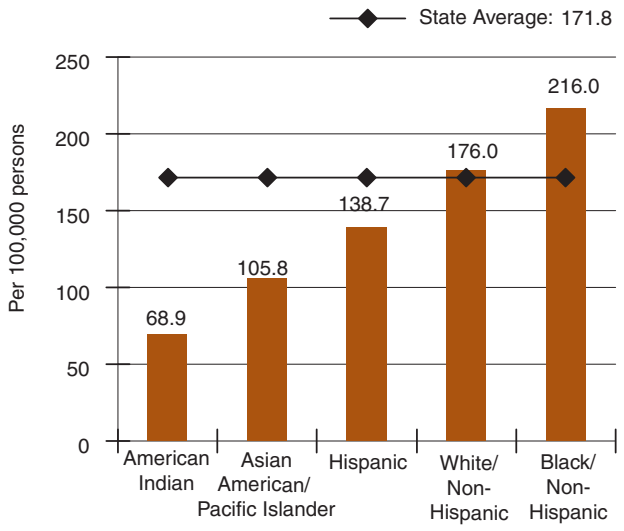


Source: Health Statistics Section, Colorado Department of Public Health and Environment, Vital Statistics Dataset

Cancer

In Colorado, the black population has the highest rate of cancer deaths at 1.25 times the state average rate of 171.8 per 100,000 persons—a significant difference (Figure 21). The *Healthy People 2010 Objective* is to reduce the rate of cancer deaths to no more than 158.7 per 100,000.

Figure 21. Cancer Death Rates: Age-Adjusted, Colorado Annual Average 1998-2002

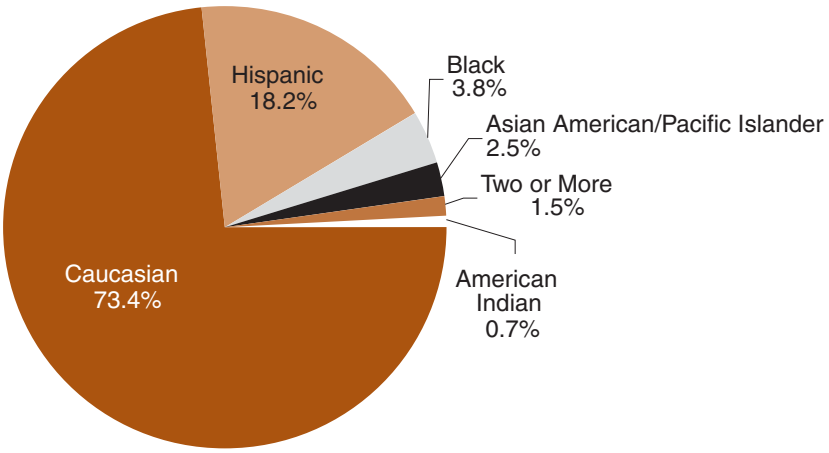


Source: Health Statistics Section, Colorado Department of Public Health and Environment, Vital Statistics Dataset

Population by Race and Ethnicity

The magnitude of health disparities by race and ethnicity are of growing concern, especially because Hispanics, blacks, American Indians, Asian Americans, and Pacific Islanders collectively account for over one-quarter of Colorado's population, and the numbers are increasing. Populations by race and ethnicity are provided in Figure 22.

Figure 22. Population Estimates by Race and Ethnicity, Colorado 2002



Source: U.S. Census Bureau, Population Division, State Population Datasets
**Note: All racial categories are Non-Hispanic; percentages do not add to 100 due to rounding.*

These population figures include the members of the Mountain Ute and Southern Ute Indian tribes, which are sovereign nations located in the southwest corner of the state. However, these figures may not illustrate Colorado's growing migrant workforce, consisting primarily of Hispanic individuals, who reside mainly in Denver, mountain resort towns, and agricultural areas of the state.

Causes of Health Disparities

The causes of racial and ethnic health disparities are complex. According to the Centers for Disease Control and Prevention, health disparities often reflect the underlying inequalities in social environments, which make some communities more health-promoting than others. It is within these local environments that individuals, partly based on their race/ethnicity, may be continually exposed to certain risk factors (lack of economic opportunity, poverty, inadequate housing, deteriorating physical environments, psycho-social stress, discrimination, lack of access to goods and services, etc.). This in turn contributes to the adoption of unhealthy behaviors such as poor diet, lack of physical activity, and cigarette smoking. For people of color, many times the social environment has been influenced by historical events such as colonization, slavery, and segregation. Many neighborhoods with disparities in social economic status are still divided along racial lines.

The Cost of Disparities in the Prevalence of Obesity

Health disparities are costly to society, not only in terms of lost productivity and community contributions, but also in terms of publicly funded medical care. For example, obesity is a preventable condition that in 2003 was estimated to have cost Colorado $874 million, or $1,710 per person, in obesity-attributable medical expenses.

The prevalence of obesity is higher in the black and Hispanic populations than the white non-Hispanic population. To estimate the medical expenses that could be saved if the disparities among communities of color were eliminated, the cost of these disparities was quantified using the following method. First, the obesity prevalence rate of 13.6 percent for the white non-Hispanic population was considered the baseline, as the majority population with the greatest access to health care, education, and economic opportunities—three major determinants of health and health behavior. All additional cases above this rate were calculated as disparities. Applying the prevalence rate of minority disparities to the adult population of Coloradans who are on Medicaid or are uninsured shows that by eliminating these disparities, the total number of obesity cases could be reduced by 23,632. At an annual cost of $1,710 per person, a reduction of 23,632 cases would save over $40 million every year (Figure 23).

Figure 23: Cost of Obesity in Colorado Adult Minorities Due to Disparities

	Obesity Prevalence Rate, BRFSS 1999-2002	Difference in Prevalence Due to Disparities	Obesity Disparities within the Population on Medicaid or Uninsured	Per Capita Medical Costs for Colorado Adults with Obesity	Annual Cost for Additional Cases, 2003 Dollars
White	13.60%	0.00%	0	$1,710	$0
Black	28.90%	15.30%	7,540	$1,710	$12,893,589
Hispanic	20.30%	6.70%	14,495	$1,710	$24,788,057
Other	17.10%	3.50%	1,597	$1,710	$2,730,471
Total			23,632		$40,412,117

Health Behaviors

Behaviors related to diet and physical activity have a direct impact on a person's Body Mass Index. In terms of a lack of physical activity, 34 percent of Hispanics self-reportedly are physically inactive—a percentage that is statistically higher than the state rate of 19.4 percent. Over 24 percent of blacks reported physical inactivity (although this percentage is not statistically significantly different than the state rate) (Figure 24).

Additionally, the Centers for Disease Control and Prevention recommend the consumption of at least five fruits and vegetables per day, as a protective factor against cancer and other chronic diseases. In Colorado, the percentage of whites, blacks, and Hispanics that report engaging in this health behavior is low. In fact, less than one-quarter of Colorado residents (23.6 percent) report eating at least five fruits and vegetables per day (Figure 25).

Figure 24. Percentage of People Reporting Physical Inactivity By Race and Ethnicity, Colorado Annual Average 2001-2002

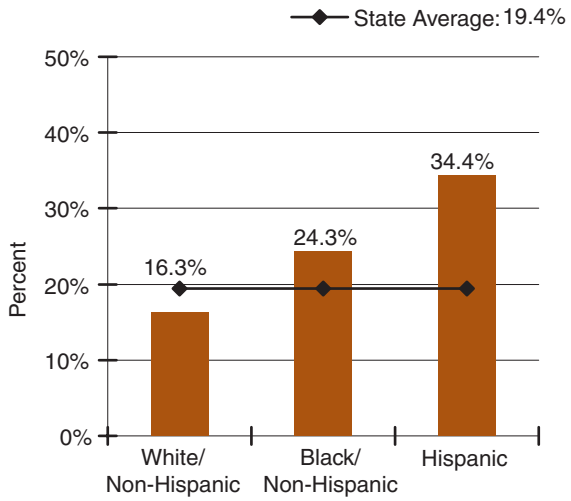
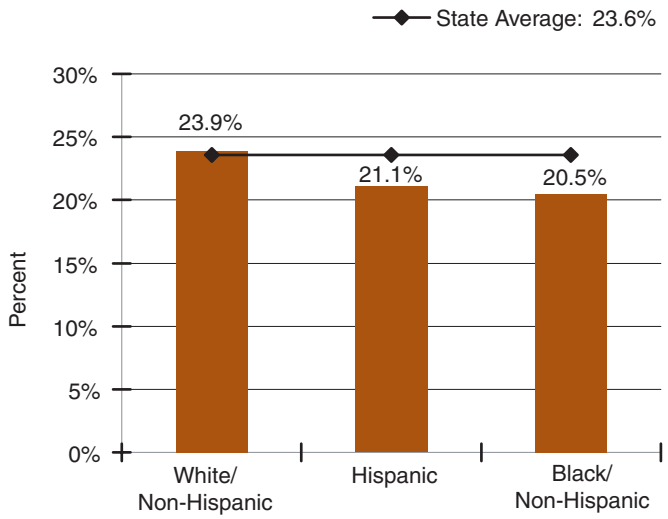


Figure 25. Percentage of People Who Reportedly Eat Five or More Fruits and Vegetables Per Day, by Race and Ethnicity, Colorado Annual Average 2000 and 2002



When designing policies or strategies to reduce the rate of chronic diseases among communities of color, it is important to know the historical context, culture, and experiences of people within different racial and ethnic groups. It is the challenge of the public health field to understand how the social environment impacts health, to support communities in promoting changes within their own environment, and to ensure that resources are targeted to groups with the greatest burden of disease. It is also important to recognize that communities of color are incredibly diverse within each racial/ethnic group, and that strategies may need to be modified or changed entirely based on unique cultures, languages, and histories.

COLORADO HEALTH DISPARITIES STRATEGIES AND ACTION STEPS

Strategy 1: Identify the geographic areas in Colorado that are likely to bear the greatest burden of obesity, e.g., neighborhoods that are predominantly African-American, Latino, etc., so that resources can be targeted.

Strategy 2: Provide mini-grants to culturally diverse community organizations as identified by their communities to promote better nutrition and increased physical activity.

Strategy 3: Ensure that all Colorado Physical Activity and Nutrition Program Task Forces have culturally diverse representation, and produce and use materials that are culturally competent and available in Spanish or other languages, when beneficial.

Strategy 4: Support communities/neighborhoods in creating coalitions and conducting assessments to determine what health-promoting characteristics of the community exist, what resources are available, and what are the barriers to change.

Strategy 5: Use collaboration as a tool to leverage resources for those having a stake in a community's health: government, local merchants, local foundations, etc.

Strategy 6: Collaborate with researchers who specialize in physical activity and nutrition and/or obesity to encourage them to focus their research on, and include sufficient numbers of people from, communities of color so that the data are statistically significant to communities of color.

Strategy 7: Partner with medical and public health schools, health disparities collaborations, and public health leadership training programs in Colorado to encourage and support people of color becoming healthcare providers and public health professionals.

Strategy 8: Promote the dissemination of research and interventions for communities of color at professional conferences for healthcare providers and public health professionals.

Strategy 9: Integrate with other chronic disease programs at the Colorado Department of Public Health and Environment to better address health disparities.

Case Study:

The Metro Denver Black Church Initiative Walks its Way to Health

The Metro Denver Black Church Initiative is a model of what a community-based organization can do to influence its community's health. The Black Church Initiative's Health Collaborative, *Faith & Health Ministries*, is a network of more than 35 black churches that utilizes the leadership of the ministers, health liaisons, and parish nurses to provide health education, health promotion, and health screenings. This type of network provides ongoing support for community members.

In 2002, the Black Church Initiative implemented the University of Colorado's evidenced-based program *Colorado On The Move*™. This program improves health by increasing physical activity through walking. Electronic step counters were used to help participants monitor their number of steps. An additional 2,000 steps above a person's baseline has the potential to stop weight gain. Fifteen churches associated with the Black Church Initiative participated in this initiative and reported weight maintenance, weight loss, and an overall feeling of well-being among church members.

HEALTHY PEOPLE 2010 OBJECTIVES

Developed by the U.S. Department of Health and Human Services, *Healthy People 2010* is a measurement tool designed to evaluate the nation's progress toward improving health and contains a set of health objectives for the nation to achieve over the first decade of the new century. Specific areas that apply to obesity and related chronic diseases are physical activity, nutrition, overweight/obesity, diabetes, cardiovascular disease, arthritis, and cancer. The following section outlines how Colorado compares to the national *Healthy People 2010 Objectives*.

Physical Activity

The following *Healthy People 2010 Objectives* were established to increase the duration and intensity of physical activities undertaken by adults, adolescents, and children.

Physical Activity in Adults

Healthy People 2010 Objective 22-1:

Reduce to at least 20 percent the proportion of adults ages 18 and older who engage in no leisure-time physical activity (U.S. Baseline: 40 percent, 1997).

Current Status in Colorado:

In 2003, 17 percent of Colorado adults ages 18 and older did not engage in any leisure-time physical activity. Whereas only 14 percent of white, non-Hispanic adults were inactive, 30 percent of Hispanics reported no leisure-time physical activity.

Since Colorado met this objective, efforts will be made to further reduce the proportion of adults who engage in no leisure-time physical activity to 12 percent, with special emphasis placed on reaching minority populations.

Healthy People 2010 Objective 22-2:

Increase to at least 30 percent the proportion of people ages 18 and over who engage in regular, preferably daily, moderate physical activity for at least 30 minutes per day (U.S. Baseline: 15 percent, 1997).

Current Status in Colorado:

In 2003, 41 percent of Colorado adults, ages 18 and over, engaged in moderate physical activity for at least 30 minutes, five or more days per week. Of this total, adults without a high school degree, or 30.8 percent, were less likely to engage in moderate exercise than were their college educated peers (44.2 percent participated in such activity).

Since Colorado met this objective, efforts will be made to incorporate the proportion of adults who engage in moderate activity to 45 percent.

Healthy People 2010 Objective 22-3

Increase to 30 percent the proportion of adults who engage in vigorous physical activity that promotes the development and maintenance of cardiorespiratory fitness, three or more days per week, for 20 or more minutes per occasion (U.S. Baseline: 23 percent, 1997).

Current Status in Colorado:

Almost 33 percent of Coloradans engaged in vigorous activity in 2003, for 20 or more minutes per day, at least three or more days per week. Adults without a high-school degree (17.8 percent) were less likely to engage in vigorous exercise than were college graduates (36.5 percent).

Since Colorado has met this objective, efforts will be made to increase the proportion of adults who engage in vigorous activity to 38 percent.

Physical Activity in Children and Adolescents

Healthy People 2010 Objective 22-6:

Increase to at least 35 percent the proportion of adolescents in grades 9-12 who engage in moderate physical activity for at least 30 minutes, on five or more of the previous seven days (U.S. Baseline: 27 percent, 1997).

Current Status in Colorado:

In 2003, 31 percent of 9-12th graders engaged in moderate physical activity for at least 30 minutes, five or more of the previous seven days.

Healthy People 2010 Objective 22-7:

Increase the proportion of adolescents to 85 percent who engage in vigorous physical activity that promotes cardiorespiratory fitness three or more days per week, for 20 or more minutes per occasion (U.S. Baseline: 65 percent, 2001).

Current Status in Colorado:

Unweighted 2003 Colorado Youth Risk Behavior Survey data reported that 64 percent of adolescents in grades 9-12 engaged in vigorous physical activity, three or more days per week, for 20 or more minutes per occasion, with males having more activity (68 percent) than females (60 percent).

Healthy People 2010 Objective 22-11:

Increase the proportion of adolescents to 75 percent who watch television two or fewer hours on a school day (U.S. Baseline: 62 percent, 2001).

Current Status in Colorado:

Unweighted 2003 Colorado Youth Risk Behavior Survey data reported that 63 percent of adolescents from grades 9-12 watched two or fewer hours of television per day, with males watching more television (65 percent) than females (70 percent).

Food and Nutrient Consumption

The following *Healthy People 2010 Objectives* were established for adults, adolescents, and children to increase their daily consumption of fruits and vegetables, and to decrease their intake of fat.

Healthy People 2010 Objectives 19-5 and 19-6:

Increase to at least 75 percent the proportion of adults and adolescents who consume at least two daily servings of fruit (19-5). Increase to at least 50 percent the proportion of adults and adolescents who consume at least three daily servings of vegetables, with at least one-third being dark-green or deep-yellow vegetables (19-6). (U.S. Baseline: 28 percent fruit intake; 3 percent vegetable intake, 1994-1996).

Current Status in Colorado:

Although not directly comparable to the *Healthy People 2010 Objective*, 23 percent of Colorado adults consumed five or more servings of fruits and vegetables a day in 2003.

Healthy People 2010 Objective 19-9:

Increase to at least 75 percent the proportion of adults and adolescents who consume no more than 30 percent of calories from fat (U.S. Baseline: 33 percent, 1994-1996).

Current Status in Colorado:

No available data for Colorado.

Nutrition and Overweight

The following *Healthy People 2010 Objectives* were established to increase the prevalence of healthy weight among adults, adolescents, and children.

Healthy People 2010 Objective 19-1:

Increase to at least 60 percent the prevalence of healthy weight (defined as a Body Mass Index of 18.5-24.9) among all people ages 20 years and older (U.S. Baseline: 42 percent, 1988-1994).

Current Status in Colorado:

In 2003, 49 percent of Colorado adults were at a healthy weight. More women than men were at a healthy weight (58 percent versus 40 percent, respectively). Fifty percent of white, non-Hispanics were at a healthy weight compared to 42 percent of Hispanics. Younger residents (<35 years old) were most likely to be at a healthy weight (57 percent), whereas only 40 percent of those ages 55-64 were at a healthy weight.

Healthy People 2010 Objective 19-2:

Reduce to, at most, 15 percent the proportion of adults ages 18 and older who are identified as obese (a Body Mass Index of 30.0+). (U.S. Baseline: 23 percent, 1988-1994).

Current Status in Colorado:

By self-report, 16 percent of Colorado adults ages 18 and older were obese in 2003. Males were more likely to be obese (17 percent) than females (15 percent).

By race, non-Hispanic whites were less likely to be obese (15 percent), followed by Hispanics (20 percent). Non-Hispanic blacks are most likely to be obese (23 percent).

Healthy People 2010 Objective 19-3b:

Reduce to, at least, five percent the proportion of children and adolescents who are overweight or obese (U.S. Baseline: 11 percent, 1988-1994).

Current Status in Colorado:

In 2003, 10 percent of Colorado adolescents were overweight. Males were more likely to be overweight than females, and the prevalence of those who are overweight is highest in the younger grades. No data for childhood obesity are available in Colorado.

Healthy People 2010 Objective 19-11:

Increase the proportion of persons ages 2 years and older who meet dietary recommendations for calcium (U.S. Baseline: 46 percent, 1988-1994).

Current Status in Colorado:

No available data for Colorado.

Breastfeeding, Newborn Screening, and Service Systems

Healthy People 2010 Objective 16-19:

Increase the proportion of mothers who breastfeed their babies to 75 percent in early postpartum, 50 percent at 6 months, and 25 percent at 1 year. (U.S. Baseline: 64 percent, 29 percent and 29 percent, 1998).

Current Status in Colorado:

In 2002, Colorado's breastfeeding initiation rate was 85.5 percent. At nine weeks, 63.1 percent of mothers continue to breastfeed (Pregnancy Risk Assessment Monitoring System 2000).

BREASTFEEDING PROMOTION

Introduction

Research has shown that breastfeeding is the superior feeding method for infants. Formula-fed babies have an increased risk of developing a wide array of infectious and noninfectious diseases such as ear infections, respiratory and diarrheal illnesses, diabetes, allergies, and childhood cancers. Breast milk is the most complete form of nutrition for infants, and it evolves as the infant matures. Breastfeeding also improves maternal health by reducing postpartum bleeding and may lower the risk of premenopausal breast cancer and ovarian cancer. Recent studies have linked breastfeeding with a reduced risk of obesity, providing further evidence to promote breastfeeding. Possible mechanisms of this include: learned self-regulation of energy intake, metabolic programming involving insulin, leptin, or protein, and other reasons related to attributes of breastfeeding women including higher education and higher income status.

The benefits of breastfeeding are clear, yet many women still choose to use formula. Lack of support, lack of the basic knowledge of breastfeeding, and lack of public acceptance are some of the reasons women choose formula feeding over breastfeeding.

Defining the Problem

Healthy People 2010 has set goals for breastfeeding with regard to initiation and duration. The goal is a 75 percent initiation rate and a 50 percent duration rate. In other words, the goal is for 75 percent of all postpartum mothers to begin breastfeeding and for 50 percent of those mothers to continue breastfeeding until the baby is six months of age. In 2001, the Pregnancy Risk Assessment Monitoring System showed that Colorado's initiation rate exceeded the *Healthy People 2010 Objectives* with 81.7 percent of mothers initiating breastfeeding. However, only 21.2 percent of those women continued breastfeeding until 20 weeks postpartum. Sixty-four percent of breastfed infants received other food at less than nine weeks of age.

Two reasons women cite for quitting breastfeeding are breastfeeding difficulties they encounter (such as perceived or actual low milk supply) and needing to return to work or school. Lactation services to assist with breastfeeding challenges are typically not covered by insurance, and the fee for consultations can range from $40 to $50 per half-hour. There are a few resources in Colorado, such as La Leche League; Women, Infants and Children; and community hospitals; which can help with breastfeeding problems, but not all of these are available in every county nor to all women. In addition, effective double-sided breast pumps for purchase range from $250 to $300, and breast pump rental rates are also high, ranging from $1.50 to $2 a day. This is financially prohibitive for many women.

In the 2004 legislative session, Senate Bill 88, giving women the right to breastfeed wherever they have the right to be, was passed. Colorado was one of a handful of states that did not have this type of law previous to the session.

While having access to the baby or a breast pump is key to successfully breastfeeding when one returns to work, it is also imperative that the mother has a supportive workplace environment. Many women in Colorado begin

breastfeeding, but without assistance and encouragement, they tend to quit just weeks after starting.

Failure of mothers to breastfeed their infants can lead to increased illness, obesity, and chronic diseases. The American Academy of Pediatrics recognizes breastfeeding as the preferred infant-feeding method: "Human milk is the preferred feeding method for all infants, including premature and sick newborns, with rare exceptions. Although economic, cultural, and political pressures often confound decisions about infant feeding, the American Academy of Pediatrics firmly adheres to the position that breastfeeding ensures the best possible health as well as the best developmental and psychosocial outcomes for the infant. Enthusiastic support and involvement of pediatricians in the promotion and practice of breastfeeding is essential to the achievement of optimal infant and child health, growth, and development."

Colorado Breastfeeding Promotion Strategies and Action Steps

Founded in 1990, the Colorado Breastfeeding Task Force is a volunteer organization comprised of physicians, nurses, public health officials, dietitians, lactation consultants, counselors, and members of the business community who have led the way for Colorado children to be breastfed at one of the highest rates in the nation. The Colorado Breastfeeding Task Force works closely with the Colorado Department of Public Health and Environment's Supplemental Nutrition Program for Women, Infants, and Children to reach communities that have historically had low breastfeeding rates. The Colorado Physical Activity and Nutrition Program's Breastfeeding Promotion Task Force, a work group of the Colorado Breastfeeding Task Force, formulated an action plan toward increasing breastfeeding initiation and duration rates, thereby improving the health of Colorado's citizens. The breastfeeding promotion

strategies are to:

- Establish areas of breastfeeding support in communities across Colorado during the prenatal, postpartum, and labor and delivery stages.
- Provide education on the benefits, myths, and intricacies of breastfeeding to health professionals, expectant mothers, and their families.
- Encourage hospitals to adopt breastfeeding-friendly environments.
- Increase protection, promotion, and support for breastfeeding mothers in the work force.
- Conduct research that assesses the current status of support of the breastfeeding mother in Colorado.

Partnership between federal, state, local, and private organizations must occur to ensure successful implementation of these strategies to ultimately improve breastfeeding promotion and support in Colorado.

COLORADO BREASTFEEDING STRATEGIES AND ACTION STEPS

Strategy 1: Establish areas of breastfeeding support in communities across Colorado during the prenatal, postpartum, and labor and delivery stages.

Action Steps:

- Identify and promote national, statewide, and local breastfeeding helplines; publicize in Colorado print and audio media.
- Identify and disseminate information on existing breastfeeding support groups, and resources such as La Leche League and local lactation consultants.
- Raise awareness in local communities of the importance of supporting the breastfeeding woman.
- Establish and promote peer-counseling breastfeeding programs in communities.
- Promote multifaceted media campaigns supportive of breastfeeding.

Strategy 2: Provide education on the benefits, myths, and intricacies of breastfeeding to health professionals, expectant mothers, and their families.

Action Steps:

- Establish and promote culturally sensitive breastfeeding classes and recommend the inclusion of breastfeeding in prenatal classes and parent programs in high schools.
- Collaborate with nursing, nutrition, and medical schools to incorporate a breastfeeding component in mandatory curricula.
- Identify and promote an instructor's guide on breastfeeding for physicians, nurses, and midwives that can be used for classes, during counseling, and as handouts to patients.
- Provide and support medical staff who treat pregnant women and new mothers with appropriate breastfeeding education and consistent messages on a regular basis.

Strategy 3: Encourage hospitals to adopt breastfeeding-friendly environments.

Action Steps:

- Identify materials and develop systems for providing new mothers with breastfeeding support resources.

➔

- Identify potential funding sources to create breastfeeding supportive gift bags in Colorado hospitals. Create and distribute to new mothers.
- Familiarize Colorado hospital administrators with the Baby Friendly Hospital Initiative.
- Promote in hospital maternity-care practices supportive of breastfeeding in line with the Baby Friendly Hospital Initiative.
- Provide supportive environments for breastfeeding in Neonatal Intensive Care Units.
- Seek support for hospitals to receive stipends to provide breastfeeding services to women who do not qualify for other assistance programs, and cannot afford services.
- Research current hospital breastfeeding practices that are occurring in other states/nations for ideas on implementing breastfeeding support programs.
- Develop systems for the reimbursement of lactation services, such as through health insurance/ HMOs, or hospital services, etc.

Strategy 4: Increase protection, promotion, and support for breastfeeding mothers in the workforce.

Action Steps:

- Advocate for mandating breastfeeding-friendly policies in worksites, such as allowing for breaks and providing private rooms, along with flexible work schedules.
- Utilize existing materials that support breastfeeding employees in the workplace.
- Recognize local businesses that promote and support breastfeeding.
- Educate women in recognizing characteristics of breastfeeding-friendly childcare environments.
- Apply for funding to purchase breast pumps for women returning to work.
- Educate women to recognize family-friendly workplaces.

Strategy 5: Conduct research that assesses the current status of support of the breastfeeding mother in Colorado.

Action Steps:

- Help to formally evaluate programs and breastfeeding action steps before and after implementation to measure their effects on breastfeeding rates in Colorado.
- Explore racial disparities among women in Colorado and support research regarding practical interventions in this area towards reaching *Healthy People 2010 Objectives.*
- Continue to survey the delivery nurseries in this state as to best breastfeeding practices.

Case Study: The Centers for Disease Control and Prevention examined the Pediatric Nutrition Surveillance System to see if a longer duration of breastfeeding was associated with lower obesity rates. After investigating the reports of 177,304 children, they found that the rate of overweight decreased with increasing breastfeeding rates and that the rate of overweight at 4 years of age was highest among children who were never breastfed or were breastfed for less than one month. In conclusion, "this study highlights one consequence of prolonged breastfeeding and reinforces the rationale for recommendations to breastfeed an infant for at least a full year."

Grummer-Strawn LM, Mei Z. 2004. Does breastfeeding protect against pediatric overweight? Analysis of longitudinal data from the Centers for Disease Control and Prevention Pediatric Nutrition Surveillance System. Pediatrics Electronic Pages 113(2):e81-e86.

PHYSICAL ACTIVITY AND NUTRITION IN EARLY CHILDHOOD

Introduction

More and more children are becoming overweight at an earlier age. Current treatment methods for overweight are largely unsuccessful. Once overweight, a large percentage of children will remain overweight and will suffer the associated health problems later in life. Due to these factors, the early childhood years are opportune times to prevent overweight and obesity.

Terminology

In this section, the term "overweight" is used rather than "obesity" for the following reasons:

- "Overweight" refers to excess body weight, which includes all body tissues; "obesity" refers only to excess body fat.
- Accurate definitions and measures of obesity in childhood are not available, although new growth charts from the United States Centers for Disease Control and Prevention enable caregivers to plot a child's Body Mass Index showing the potential to be overweight or obese as an adult.

The Colorado Physical Activity and Nutrition Program's Early Childhood Task Force is a collaboration of state and local public health agencies and community partners with expertise in nutrition, physical activity, and early childhood development. The task force recognizes the need for prevention of overweight during early childhood (birth to age five) and the need for developmentally appropriate interventions.

Knowing that childhood overweight is a community issue, action steps are targeted not only at community leaders, but also to parents, caregivers, public health educators, health care providers, teachers, and others who provide care and services to young children. Collaboration is crucial at both the state and local levels.

Defining the Problem

Much of the data on overweight has been assessed for children beginning at age six. There is limited information about overweight in children from birth to age six. Prevalence of overweight in the pediatric population is based on the percentage of children above the 95th percentile on a weight-for-stature chart.

The Colorado Child Health Survey is a random digit-dial telephone survey that is an "add-on" to the Behavioral Risk Factor Surveillance System. Starting in 2004, the survey will be conducted among parents of children one to 14 years old. Questions will focus on the health and health behaviors of a randomly selected child in the household. This survey should address the gap in data related to children's health.

Information that is available includes a small data set from the National Health and Nutrition Examination Survey III (1988-1994) that shows an overweight

rate for that time period of 7.2 percent among two- to five-year-olds, compared with 10.4 percent for the 1999-2000 data. In addition to these statistics, the United States Centers for Disease Control and Prevention collects childhood data through a system called the Pediatric Nutrition Surveillance System or PedNSS. It is a child-based public health surveillance system that monitors the nutritional status of low-income children in federally funded maternal and child health programs.

National Pediatric Nutrition Surveillance System data for the year 2002 showed that the prevalence of overweight was 13.4 percent for children age two to five. Historical trends show that the prevalence of overweight in the two- to five-year-old age group has steadily increased, along with increases in other age groups. Since 1992, rates of overweight have climbed 2.8 percent (from 10.6 percent in 1992 to 13.4 percent in 2002).

In the state of Colorado, the Special Supplemental Nutrition Program for Women, Infants, and Children supplies data for Pediatric Nutrition Surveillance System. In 2002, 8.7 percent of Colorado children reported in the Pediatric Nutrition Surveillance System system were overweight. Similar to nationwide statistics, this number has steadily increased over the last 20 years. In 1982, 5.1 percent of children reported in Colorado Pediatric Nutrition Surveillance System were overweight.

Other statistics show that half of children ages two to three do not meet the dietary guidelines for any food group, while children ages four to six are even less likely to meet the dietary guidelines.

Overweight in children younger than age two does not pose the same risk as it does in children ages two or older because little association has been found between their weight and increased risk for adult obesity. Data for children birth to two years of age has not been provided for this reason.

Colorado Early Childhood Strategies and Action Steps

The *Colorado Physical Activity and Nutrition State Plan 2010* will lead state health programs to coordinate efforts of agencies and organizations whose activities focus upon nutrition, physical activity, and early childhood development. Collaborative projects will target parents and families, health professionals, childcare providers, preschool educators, recreation programs, community agencies, and policy makers to incorporate supportive environments and systems for healthier lifestyles among Colorado's young children.

The Early Childhood Task Force has identified the following strategies to address the alarming rise in the prevalence of overweight children:

- Raise awareness of the benefits of healthy eating and developmentally appropriate activity in children birth to age five and their families.
- Provide educational opportunities that will improve parents and other caregivers' abilities to meet recommendations for healthy eating and developmentally appropriate physical activity.
- Provide for health care professionals education opportunities and resources related to nutrition and physical activity.
- Promote an environment that encourages healthy eating and active lifestyles as the norm rather than the exception.

Collaborative partnerships can achieve these strategies by empowering families and other community members to support healthy eating and active behaviors for young children through multiple channels. These include media resources, campaigns, educational workshops, child care and preschool services,

community programs for families, food assistance programs, health care services, and policy development.

Early childhood is a crucial time in every child's development to teach lifelong healthy eating habits and activity behaviors and attitudes. By developing strong foundations during the early years of life, increasing healthy lifestyles in adolescence and adulthood in Colorado may be within reach.

COLORADO EARLY CHILDHOOD STRATEGIES AND ACTION STEPS

Strategy 1: Raise awareness of the benefits of healthy eating and developmentally appropriate activity in children birth to age five and their families.

Action Steps:

- Host workshops for health care professionals, parents, and child care providers defining the scope of the problem of overweight in children.
- Coordinate a multifaceted campaign promoting nutrition and physical activity in childhood and discussing the potential consequences resulting from overweight in childhood.
- Identify and promote existing resources and programs available for early childhood overweight prevention.
- Encourage the development of evidence-based programs promoting physical activity and nutrition in the prevention of early childhood overweight.
- Public health and community agencies should take the lead in increasing public awareness and action in preventing early childhood overweight.
- Form local coalitions of health professionals, child care providers, parents, and others to raise awareness of early childhood overweight in communities.

Strategy 2: Provide educational opportunities that will improve parents' and other caregivers' abilities to meet recommendations for healthy eating and developmentally appropriate physical activity.

Action Steps:

- Integrate the topics of healthy eating and physical activity into existing parenting programs and other community resources.
- Assist families in setting goals for healthful eating and increasing physical activity.
- Educate and update parents, child care providers, and community leaders about issues regarding early childhood overweight and actions for prevention.
- Encourage caregivers to attend continuing education on effective programs for nutrition and physical activity.
- Provide and promote instruction on developmentally and culturally appropriate physical activity and nutrition.
- Encourage parents and caregivers to act as nutrition and physical activity role models for young children.

Strategy 3: Provide educational opportunities and resources in nutrition and physical activity for health care professionals.

Action Steps:

- Identify and promote a curriculum for physicians that focuses on counseling parents in a concise, effective, nonthreatening way about overweight in children.
- Encourage health care professionals to attend professional development programs on current guidelines, evidence-based programs, and resources in the prevention of early childhood overweight.
- Establish a referral base of registered dietitians, physicians, counselors, and certified exercise specialists that specialize in early childhood for health care providers.
- Encourage health care providers to act as physical activity and nutrition role models for young children and parents.
- Address early childhood overweight in medical, nursing, nutrition, and physician-assistant education programs.

Strategy 4: Promote an environment that encourages healthy eating and active lifestyles as the norm rather than the exception.

Action Steps:

- Develop, advocate for, and implement policies ensuring that food options such as fruits, vegetables, whole grains, and dairy products that are low in fat (for children over two years of age), calories, and added sugars are provided in childcare settings.
- Encourage adherence to single-portion sizes as defined by the U.S.D.A. Food Guide Pyramid in foods offered in the childcare setting.
- Encourage adherence to the Dietary Guidelines for Americans focusing on variety, moderation, and balance when planning snacks and meals.
- Involve children in meal planning, grocery shopping, and food preparation.
- Limit television viewing, and video and computer games while promoting family activities such as active games, sports, or recreational activities.
- Encourage parents and caregivers to walk with children for recreation and transportation.
- Encourage families and caregivers to take advantage of food-assistance programs that offer nutrition education and balanced food choices.
- Incorporate age-appropriate and culturally sensitive instruction in activity and nutrition that help children develop the knowledge, attitudes, skills, and behaviors to adopt, maintain, and enjoy a healthy lifestyle.
- Promote awareness of the link between healthy eating and physical activity to improved school-readiness skills.
- Encourage public health agencies, childcare providers, recreation programs, and other community partners to work collaboratively toward the prevention of early childhood overweight.
- Advocate for the livable communities concept where recreation and walking opportunities are plentiful and easily accessible throughout the community.

PHYSICAL ACTIVITY AND NUTRITION AT SCHOOL SITES

Introduction

Schools that support healthful eating and physical activity as part of a total learning environment produce healthy students. It is imperative that the total school environment, including the cafeteria and classroom, be aligned with goals to positively affect a child's eating and physical activity, decision-making skills based on knowledge, attitudes, and behaviors. Healthy students, who achieve their educational potential, create healthy communities and a healthier Colorado.

The Colorado Physical Activity and Nutrition Program's School Site Task Force represents collaboration and participation from state and local health, education, nutrition, physical activity, government, business and industry, and community partners. These collaborators recognize the critical need to improve children's overall health to manage obesity and overweight. The underlying premise of the School Site Task Force is that Colorado schools support an environment in which children learn about a healthful diet and practice physical activity skills that will aid them in achieving a healthy lifestyle.

Defining the Problem

According to the 1999-2000 National Health and Nutrition Examination Survey, an estimated 15 percent of U.S. children and adolescents, ages six to 19, are overweight. Childhood obesity and overweight are on the rise, while diet quality is poor, and physical activity levels are insufficient. Due to budget and curriculum pressures, physical education programs have declined in public schools. It is estimated that only 50 percent of U.S. elementary and middle schools, and 20 percent of high schools, provide physical education programs.

In 2001, 49 percent of Colorado adolescents in grades 9–12 did not participate in physical education classes. Although Colorado does have statewide standards for physical education, it is one of only two states that do not mandate physical education. According to studies from the U.S. Department of Agriculture and the U.S. Department of Health and Human Services, consumption of high-calorie, high-fat foods and beverages is on the rise. Other on-campus foods such as a la carte foods, school stores, and drinks from the cafeteria or vending machines, do not have to meet the National School Lunch Program guidelines for dietary requirements. Children also are spending more time on sedentary activities, including television viewing and computer games. These factors compromise children's ability to achieve their full educational potential, and increase their risk for being overweight and obese.

Colorado School Site Strategies and Actions Steps

In response to President Bush's *Healthier U.S. Initiative* and the *Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity 2001*, a memorandum of understanding among the U.S. Departments of Education, Health and Human Services, and Agriculture was created to establish a general framework for cooperation. The strategies and action steps in the school site

section of this plan have attempted to incorporate the memorandum's principles of cooperation. As a result, the *Colorado Physical Activity and State Plan 2010* will strive to model its efforts by coordinating programs of the state health and education departments, and other allied associations representing nutrition and physical activity. Professionals at the state and local levels will work directly or indirectly with Colorado public and private schools, and their communities, to implement these programs.

Case Study: Fit Cat Health Club

The Fit Cat Health Club was created at Englewood School District's Flood Middle School in 2002 with a grant from the Colorado Department of Education in conjunction with the Centers for Disease Control and Prevention. The purpose of the grant was to provide schools with funding to offer opportunities for students to engage in physical activity. The Fit Cat Health Club increases the number of minutes that students can be physically active in targeted, supervised after-school activities to address the concern for obesity, Type 2 diabetes, and other health risks that are rising in our youth population. It involves students and leaders through a Student Advisory Board and as program volunteers. Membership in the program is open to all enrolled students free of charge. It is promoted through announcements, bulletins, posters, and flyers. For more information, contact (303) 806-2192.

Case Study: Breakfast in the Classroom

Realizing that breakfast has an impact on learning, Jill Kidd, director of Nutrition Services in Pueblo School District 60, implemented a Provision 2 universal classroom breakfast program that provides free breakfasts to all children in qualified schools. Menu items include milk, juice, burritos, yogurt, and breakfast pizza. Teachers and principals enthusiastically praise the program, affirming that students are more focused and more productive, listen better, and have fewer complaints of tiredness, illness, and irritability. Teachers report they "like how breakfast starts the day and helps set the tone by letting children get organized, and then settle down to work." For more information, please call (719) 549-7203.

The School Site Task Force developed the following strategies to promote physical activity and healthful nutrition choices in Colorado schools:

- Build awareness and encourage positive role modeling among administrators, teachers, food service staff, coaches, nurses, parents, students, other school staff, and community leaders about the contribution of proper nutrition to the maintenance of lifelong healthy weight.
- Develop and implement policies ensuring that all foods and beverages available on school campuses, and at school events, contribute toward healthful eating patterns that are consistent with the Dietary Guidelines for Americans.
- Provide age-appropriate and culturally sensitive instruction in physical education programs to help students develop the knowledge, attitudes, skills, and behaviors needed to adopt, maintain, and enjoy a physically active lifestyle.
- Provide opportunities for physical activity that help students develop the knowledge, attitudes, skills, and behaviors needed to adopt, maintain, and enjoy a physically active lifestyle.

These physical activity and nutrition strategies can be achieved using a school-decision-making model that addresses the education and health needs of students, as well as the school districts' funding needs. School policies can be designed to emphasize consumption of foods that contain nutrients typically missing from children's diets, such as low-fat dairy products, fruits, and vegetables. Emphasis should be on serving cost-effective, yet highly nutritious foods. Physical activity programs for grades pre-kindergarten through 12 can be designed to include Colorado's physical education standards, extracurricular activities, and recess periods. The impetus for much of this work will occur at the community level, where school boards create and oversee policy on curricula, required classes,

and school environment. The Colorado Legislature also can choose to encourage physical education and nutrition offerings in schools, and the Colorado School Board Association may create policy that addresses nutrition and physical activity issues, but individual school districts have control over implementing such changes. The School Site Task Force collaborators recognize the importance of supporting the development of children into well-educated, productive, physically fit, and well-nourished members of society.

There is a national goal to improve academic performance, and to close gaps between ethnic and socioeconomic groups. Communities are aware of the role that children's health plays in academic stamina and performance. By demonstrating the positive relationship between healthful eating, physical activity, and the capacity of children to develop and learn, the benefits of healthy school environments can be realized.

COLORADO SCHOOL SITE STRATEGIES AND ACTION STEPS

Strategy 1: Build awareness and encourage positive role modeling among administrators, teachers, food service staff, coaches, nurses, parents, students, school staff, and community leaders about the contribution of proper nutrition to the maintenance of lifelong healthy weight.

Action Steps:

- Promote the adoption of 5 A Day in cafeteria and catering policies.
- Incorporate the 5 A Day message into existing food and nutrition-assistance programs conducted by statewide agencies (e.g., School Breakfast Program, School Lunch Program).
- Include information on 5 A Day and nutrition in school communications, such as monthly meal calendars, newsletters, back-to-school nights, and health fairs.
- Provide students in pre-kindergarten through grade 12 with behavior-focused nutrition education, and integrate into an interactive curriculum.
- Encourage school staff to attend professional development programs on current nutrition guidelines, best practices, and resources.
- Train district and school food service staff on meal planning, food production, and monitoring to ensure that meals meet the Dietary Guidelines for Americans.
- Work with existing school health services to establish links with professionals who can provide nutrition counseling and/or related services for families.
- Educate school staff, parents, and community leaders about the issues affecting the health of children such as obesity, eating disorders, body-size acceptance, and steroid and supplement use.
- Build support for shared local/state/federal funding for school meals programs.

Strategy 2: Develop and implement policies ensuring that all foods and beverages available on school campuses, and at school events, contribute toward eating patterns that are consistent with the Dietary Guidelines for Americans.

Action Steps:

- Provide food options such as fruits, vegetables, whole grains, and dairy products that are low in fat, calories, and added sugars.
- Implement school breakfast programs and/or consider expanding breakfast programs by offering convenient and attractive meal options.

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- Develop and implement guidelines for healthful snacks and foods provided in vending machines, school stores, and other venues within the school's control.
- Prohibit or restrict student access to vending machines, school stores, and other venues that contain foods of minimal nutritional value.
- Develop and implement "party" guidelines for snacks and refreshments served at school parties, celebrations, and meetings.
- Develop and implement guidelines to address the use of food as a discipline or reward for students.
- Encourage nonfood fundraisers such as flowers, gift-wrap, sporting events, and family fun runs.
- Schedule lunch periods at reasonable hours around midday.
- Provide an adequate amount of time for students to eat school meals.
- Encourage recess before lunch to the extent possible.
- Encourage adherence to single-portion sizes as defined by the USDA Food Guide Pyramid in foods offered in the school setting and outside the cafeteria.
- Plan health-promotion activities for students, parents, and staff that encourage the consumption of fruits, vegetables, and low-fat dairy products, such as cooking demonstrations, school gardens, and nutrition guest speakers.

Strategy 3: Provide age-appropriate and culturally sensitive instruction in physical education classes that help students develop the knowledge, attitudes, skills, and behaviors to adopt, maintain, and enjoy a physically active lifestyle.

Action Steps:

- Devote the majority of physical education class time to moderate or vigorous physical activity.
- Require periods of physical education that total a minimum of 150 minutes per week (elementary school) and 225 minutes per week (middle and high school).
- Encourage lifestyle activity in physical education classes to ensure that students meet district standards.
- Discourage the use of physical activity as punishment.
- Assure safe and adequate equipment, facilities, and resources for the full implementation of physical education classes in a pre-kindergarten through 12th grade curriculum.
- Integrate health-related physical fitness assessment into the curriculum as an evaluation tool.

- Educate students about the health benefits of physical activity by integrating it into other subject areas and curricula.
- Hire licensed physical education teachers, or provide opportunities for personnel to acquire the recommended training or certification.
- Encourage school staff to seek out and attend professional development programs on current physical activity standards and assessments, best practices, and resources.
- Encourage and support coaches to get appropriate training and/or certification similar to or exceeding that recommended by the Colorado High School Activities Association.
- Recommend state and local policy to require daily physical education from grades pre-kindergarten through 12.

Strategy 4: Provide opportunities for physical activity that help students develop the knowledge, attitudes, skills, and behaviors to adopt, maintain, and enjoy a physically active lifestyle.

Action Steps:

- Include information on physical activity through school communications, such as monthly calendars, newsletters, back-to-school nights, and health fairs.
- Promote walking or bicycling to and from school using such programs as Walking School Bus and Bike Train.
- Provide daily recess for elementary school students, featuring time for unstructured but supervised play.
- Encourage fun, pleasant, and safe after-school programs that include physical activity.
- Provide and encourage participation in school athletics, intramural programs, and physical activity clubs.
- Encourage the use of school facilities for physical activity programs offered by the school and/or community-based organizations outside school hours.
- Work cooperatively with city parks and recreation programs to provide physical activity opportunities, such as midnight basketball, soccer tournaments, or recreation center sleep-ins for youth.
- Plan health promotion activities and incentives for students, parents, and staff that encourage regular physical activity, such as speakers, recreational demonstrations, and walking clubs.
- Work with school boards to increase physical activity opportunities for students.

PHYSICAL ACTIVITY AND NUTRITION AT COLLEGES

Introduction

College campuses have a unique opportunity to influence the health and well-being of the student, faculty, and administrative populations. Some students may be living away from home and making their own physical activity and eating choices for the first time. Although physical activity and nutrition classes may be available, not all schools mandate that students attend these classes as part of their curriculum of study. Colleges can provide the foundation for students to adopt healthy lifestyle behaviors in many ways.

The Colorado Physical Activity and Nutrition Program's College Task Force represents collaborations and partnerships with state colleges and universities, community colleges, government, business and industry, and community partners. The task force members support an environment that promotes physical activity and nutrition to all students, faculty, and administrators.

Defining the Problem

Obesity and overweight are increasing across the nation. The American College Health Association is an organization for the field of college health and provides

services, communications, and advocacy that help its members advance the health of their campus communities. This organization represents the diversity of the higher education community—two and four year, public and private, large and small institutions. In 1998, the American College Health Association instituted the National College Health Assessment to address a broad range of health, risk, and protective behaviors, consequences of behavior, and perceptions among college students. Results from the Spring 2003 survey show:

- Body Mass Index was self-reported incorporating gender, height, and weight. Overall, 65.1 percent of males and females were considered at a healthy weight with a Body Mass Index between 18.5 and 24.9. Of students surveyed, 5.1 percent had a Body Mass Index <18.5, which is considered underweight, 20.9 percent were considered overweight with a Body Mass Index of 25 – 29.9, and 9.1 percent were considered obese with a Body Mass Index of 30 - >40.

- According to the survey, 55.6 percent of college students reported they were exercising to lose weight, while 33.7 percent were dieting to lose weight. Only 6.9 percent of college students reported eating five or more servings of fruits and vegetables per day, and 59.4 percent ate only one or two servings per day.

- Exercise habits were surveyed. Within a seven-day recall, the majority of students (30.9 percent) participated in one to two days of vigorous exercise for 20 minutes or 30 minutes of moderate exercise, and 24.9 percent of students participated in zero days of exercise, while only 8.8 percent participated in 6+ days.

While these data are not specific to Colorado, it is the best data available, as general- population data from 18- to 24-year-olds in Colorado is not specific to a college environment.

Colorado College Strategies and Action Steps

The Colorado Physical Activity and Nutrition Program's College Task Force developed the following strategies that target students, faculty, and administrators, and that promote an environment for increased physical activity and healthful nutrition on college campuses:

- Provide information and opportunities for physical activity that help students, faculty, and staff develop the knowledge, attitudes, skills, and behaviors to adopt, maintain, and enjoy a physically active lifestyle.
- Provide information and opportunities for healthful eating on campus that help students, faculty, and staff develop the knowledge, attitudes, skills, and behaviors to adopt, maintain, and enjoy a nutritionally balanced lifestyle.
- Implement environmental changes and/or policies that promote and encourage healthy eating and physical activity.

These strategies can be achieved through establishing partnerships, leveraging campus programs and resources, and implementing environmental and/or policy changes.

Case Study: Stair Climbing Incentive Program

Colorado State University has a stair-climbing incentive program in the residence halls. This program is offered to students and has two objectives: to get students more active and to offer public recognition and incentives to students who are active. Participants track their stair usage. As participants reach the goal of completing 758 floors, they receive a tee shirt that states, "I climbed Mount Elbert and did not leave home." Mount Elbert is 14,433 feet, which approximately equates to the 758 floors climbed. For more information contact (970) 491-1723.

COLORADO COLLEGE STRATEGIES AND ACTION STEPS

Strategy 1: Provide information and opportunities for physical activity that help students, faculty, and staff develop the knowledge, attitudes, skills, and behaviors to adopt, maintain, and enjoy a physically active lifestyle.

Action Steps:

- Provide information to students, faculty, and staff on the benefits of increasing personal fitness levels and incorporating physical activity into daily lifestyle.
- Promote walking and bicycling to, from, and around campus; for example, by utilizing incentive-based programs (such as *Colorado On The Move*™), walking clubs/challenges, walk-and-talk study sessions/meetings, and walk-friendly campus maps.
- Provide group exercise classes, personal training, dedicated physical activity space, and/or other fitness services.
- Organize intramural and other physical activity clubs.
- Provide physical activity opportunities for evenings and weekends.
- Integrate physical activity components into existing academic curricula, such as pedometer programs, fitness journaling, or other opportunities.
- Host health promotion events on campus such as fitness testing and health screening fairs, fun runs, and speakers.
- Work with local fitness clubs to provide discounts for campuses without on-site facilities.

Strategy 2: Provide information and opportunities for healthful eating on campus that help students, faculty, and staff develop the knowledge, attitudes, skills, and behaviors to adopt, maintain, and enjoy a nutritionally balanced lifestyle.

Action Steps:

- Incorporate nutrition messages, such as 5 A Day, in dining halls, recreation centers, student centers, libraries, etc.
- Offer and/or increase healthy food options in campus dining halls, vending machines, and snack bars.
- Provide point-of-purchase nutrition education for vending, a la carte, dining halls, and campus food vendors.

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- Educate students, faculty, and staff about nutrition.
- Provide healthful meal-planning assistance in residence-hall dining facilities.
- Provide nutrition counseling and expertise from a credible source on campus.
- Provide nutrition counseling and seminars to athletes, trainers, and coaches regarding sports nutrition.

Strategy 3: Implement environmental changes and/or policies that promote and encourage healthy eating and physical activity.

Action Steps:

- Create a campus culture that supports physical activity and nutrition.
- Provide bicycle racks and/or lockers in safe, convenient, and accessible locations.
- Adopt a bike-share or equipment loaner program on campus.
- Provide clean, safe, and aesthetically appealing stairwells, and promote their use.
- Provide a safe walking environment on campus.
- Provide clean, safe, and aesthetically appealing physical activity or recreation centers and promote their use on campus.
- Encourage vending contracts and bids to include healthful food options.

Case Study: Health Information Table

The University of Colorado Student Wellness Program provides outreach education to the campus community via a health information table and peer educator with basic nutrition knowledge. This popular information table is used around campus such as outside dining halls and food courts, in the recreation center, and at health fairs. Information available includes multicultural nutrition brochures and interactive visuals such as fat jars that display total amounts of fat found in common foods, fat representations, and a junk-food game, all of which expose students to the importance of reading ingredient labels and thinking critically about what is in the foods they eat. For more information, please call (303) 492-8885 or visit www.colorado.edu/studentgroups/wellness.

Case Study: Weight Loss 101

In response to an increased interest in weight loss by students at Colorado State University, two graduate students in the Department of Food Science and Human Nutrition developed the Weight Loss 101 weight management program that was implemented in September 2003 under the guidance of registered dietitians employed at the student health center. Posters and email announcements were developed and distributed on campus to advertise the new program. For only $40, program participants receive four individual sessions with a dietitian, three group classes, and a fitness consultation with a personal trainer from the campus recreation center. Weight Loss 101 provides students with tools to eat well and increase their physical activity both on and off campus. Since the initiation of the weight management program, there has been a 25 percent increase in the number of students who seek dietary counseling on campus. For more information, contact (970) 491-1729.

PHYSICAL ACTIVITY AND NUTRITION AT WORKSITES

Introduction

Worksites can and do play an important role in influencing lifestyle behaviors of employees. Second only to sleep, Americans spend the majority of their time at the workplace. This provides an excellent opportunity for promoting healthful eating and physical activity. Worksites can provide environments that create and support change when employees and employers work together to initiate efforts.

The underlying premise of the Colorado Physical Activity and Nutrition Program's Worksite Task Force is to ensure that Colorado worksites provide an environment in which employees are able to include physical activity and healthful eating in their workday. Through the encouragement of positive lifestyle behaviors, worksites can contribute to improving the health status of employees. Worksite wellness activities can empower employees to take a more active approach toward improving their health.

Case Study: Coors Wellness, A Company Tradition

The Coors Brewing Company has a 22-year tradition of supporting the health and wellness of its employees. As a 2003 recipient of the Wellness Councils of America Gold Award, Coors has proven that wellness is not only a valuable benefit to employees, but that it is a smart thing to do for the bottom line. While Coors touts a 25,000-square-foot fitness facility, the staff spends a significant amount of time outside the facility at the worksite. By taking at least 65 percent of all wellness programs to the worksite, the staff of the Coors Wellness Center reaches many employees who do not otherwise use the wellness benefits. These programs include 10,000 Steps to Success, Worksite Injury Prevention, Smoking Cessation, Wellness at Work, Blood Pressure Squad, Weight Management, and a biannual comprehensive health screening. Additionally, the Coors Wellness Center has partnered with the Mayo Clinic to offer employees a www.coors.mayoclinic.com Web site. This online health resource provides employees with information that can improve their ability to make well-informed, self-care choices. For more information, contact (303) 277-5458.

Defining the Problem

The demands of work and fast-paced lifestyles are taxing healthful eating habits and physical activity. Poor health, due to negative lifestyle behaviors, leads to decreased productivity, increased absenteeism, lower morale, and higher health insurance claims.

On average, employer-sponsored health insurance costs rose 11 percent in 2001, and were expected to rise even more in 2002. Currently health insurance premiums are rising at four times the rate of inflation. Medical care costs consume 50 percent or more of corporate profits. More than 95 percent of

America's health care expenditures (including the billions of dollars employers spend on health care coverage) are committed to diagnosing and treating disease. In fact, preventable illness makes up approximately 70 percent of the burden of illness and the associated costs. Each year, U.S. businesses spend billions of dollars addressing obesity. Two of the primary causes of obesity are lack of physical activity and excess caloric intake. As technology continues to improve, the need for physical exertion on the job continues to decrease. Meanwhile, the typical workweek consists of 47 hours. In today's difficult economic times, many employees are being asked to work more and produce more in less time, leaving little or no time to plan and prepare healthy meals, or to participate in physical activity.

Fast-paced lifestyles, longer workweeks, family commitments, and other obligations also are driving Americans to eat "on the run" more often than ever before. Americans now spend $17 billion more each year on fast food than they do on movies, books, magazines, newspapers, videos, and recorded music—combined. Research indicates that in addition to their 47-hour workweek, Americans spend nearly 17 hours sitting in front of the television and an average of 50.6 hours sleeping. This adds up to 114 hours per week of sedentary behavior, which equates to nearly five full days of no physical activity.

Considering the number of hours employees spend at work, worksites have the opportunity to positively influence the health of employees. According to a *1999 National Worksite Health Promotion Survey*, 90 percent of U.S. companies sponsor at least one health promotion activity. However, only half of these organizations regard health as a core business value, essential to business objectives. In 2002, the Worksite Task Force developed and conducted a survey to better establish a baseline of the worksite wellness activities being provided in Colorado. According to the *2002 Colorado Physical Activity and Nutrition*

Program's Worksite Survey (n=237 companies), a majority of Colorado companies value health promotion activities and offer a variety of services. The following are highlights from the survey:

- To promote physical activity, companies primarily provide subsidized memberships to fitness facilities, company-sponsored recreation leagues, and on-site shower/locker rooms.
- Only one out of four respondents utilizes outside vendors for wellness program services.
- Most companies have vending machines available, but do not offer cafeterias or snack bars.
- Colorado companies recognize the need for healthy food and beverages in vending machines and offer bottled water, low-fat milk, and fruit juices.

Wellness Councils of America

The strategies outlined in this document are not designed to be a comprehensive worksite wellness program. Rather, they are specific ideas on how to improve physical activity and healthful eating. For information about the comprehensive worksite wellness program guidelines, contact the Wellness Councils of America at www.welcoa.org.

Many companies also conduct general health education and behavior modification programs. Although these services are being offered, Colorado companies find it difficult to implement worksite wellness activities due to three primary constraints: cost, physical space, and staffing. The worksite strategies are meant to be low or no cost, and low maintenance, and do not require extensive staff time.

Colorado Worksite Strategies and Actions Steps

It will take a coordinated effort between employers and employees to make strides in improving levels of physical activity and nutrition choices in the workplace. Worksite health promotion activities are a convenient option to assist employees in health and lifestyle choices that ultimately can affect the company's bottom line, particularly health care costs. On-site wellness services allow employees to take advantage of low-cost, accessible options that can fit into the average workday. Worksite wellness provides a perfect opportunity to reduce the impact of diseases and, ideally, to prevent their development.

Research continues to show employers a return on investment when they invest money in the health of their employees through comprehensive health promotion programs. Today, there is sufficient evidence to conclude that investing in health promotion programs can save four-to-five times more money than costs associated with health care and absenteeism. Additionally, worksite health promotion programs continue to gain popularity as an outstanding employee recruitment and retention tool to attract and maintain healthier and productive workers.

The *Colorado Physical Activity and Nutrition State Plan 2010* provides a variety of ideas for employers and employees on how to initiate wellness activities in worksites of any size. The worksite strategies that promote increased physical activity and healthful nutrition choices include:

- Promoting social support interventions and/or health education activities.
- Exploring opportunities for increased physical activity.
- Exploring opportunities for healthful eating.
- Altering worksite environments and/or policy to encourage health and wellness.

Case Study: City of Littleton

The City of Littleton provides an employee wellness program at a nominal fee, or for no cost to employees who are police officers, fire fighters, administrative and financial services personnel, maintenance workers, library and museum employees, and other support staff across multiple worksites. The city's "Fit for Life" employee wellness program began in the early 1990s, and has expanded to meet the health needs of 500 employees. The program determines annual offerings using health-risk appraisal data. Throughout the year, employees may participate in incentive programs that target healthy lifestyle, fitness, and nutrition. Behavior modification programs, such as weight management and tobacco cessation, also have been offered to interested participants. For more information, contact HEALTHBREAK, Inc. at (720) 344-9507.

These strategies can be achieved through building partnerships, using community programs and resources, instituting environmental and policy changes, and evaluating efforts. Partnerships allow employers to implement existing activities/services without spending time and effort to create new programs. Changes in the workplace environment and its policies also can positively impact behaviors. Evaluation is a critical component for programs to demonstrate success and/or sustainability, and must be part of any worksite strategy.

COLORADO WORKSITE STRATEGIES AND ACTION STEPS

Strategy 1: Promote social support interventions and/or health education activities in the workplace.

Action Steps:

- Provide health education information through newsletters, publications, Web sites, email, libraries, and other company communications.
- Offer regular health education presentations on various physical activity, nutrition, and wellness-related topics.
- Start employee activity clubs (e.g., walking, bicycling).
- Conduct preventive wellness screenings for blood pressure, body composition, blood cholesterol, and diabetes.
- Provide healthy cooking demonstrations with taste tests.
- Offer on-site weight management/maintenance programs at a convenient time for employees.
- Provide incentives for participation in nutrition, physical activity, and/or weight management/maintenance activities.
- Provide confidential health-risk appraisals.
- Host a health fair.

Strategy 2: Explore opportunities for increased physical activity.

Action Steps:

- Post motivational signs at elevators and escalators to encourage stair usage.
- Host "walk-and-talk" meetings.
- Explore discounted memberships at local health clubs, recreation centers, or YMCAs.
- Support physical activity breaks, such as stretching or walking, during the workday.
- Implement incentive-based programs, such as pedometer walking challenges, to encourage physical activity.
- Support recreation leagues and other physical activity events (on-site or in the community).
- Offer flexible work hours to allow for physical activity during the day.
- Offer on-site fitness opportunities, such as group classes or personal training.

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Strategy 3: Explore opportunities for healthful eating.

Action Steps:

- Post motivational signs about 5 A Day, nutrition, and healthful eating in the cafeteria.
- Promote the adoption of 5 A Day in catering/cafeteria policies.
- Offer healthful food alternatives at meetings, company functions, and health education events.
- Offer appealing, low-cost, healthful food options, such as fruits and vegetables, juices, and low-fat dairy products in vending machines, snack bars, break rooms, and/or cafeterias.
- Make water available throughout the day.
- Provide protected time and dedicated space away from the work area for breaks and lunch.
- Make refrigerators available for employees' food storage.

Strategy 4: Alter worksite environment and/or policy to encourage health and wellness.

Action Steps:

- Create a company culture that discourages sedentary behavior, such as television viewing on breaks and sitting for long periods of time.
- Create a company culture that minimizes consumption of low-nutrient foods and beverages, such as cakes at parties, candy bowls, and sweets as rewards.
- Provide clean, safe, and aesthetically appealing stairwells, and promote their use.
- Provide a safe walking environment on facility grounds.
- Provide bicycle racks in safe, convenient, and accessible locations.
- Establish workplace programs that promote breastfeeding.
- Designate specific areas to support employees with sensitive health issues, such as people with diabetes and nursing mothers.
- Establish on-site fitness rooms or exercise facilities.
- Add weight management/maintenance, nutrition, and physical activity counseling as a member benefit in health insurance contracts.

PHYSICAL ACTIVITY AND NUTRITION WITH OLDER ADULTS

Introduction

Senior centers, faith communities, recreation centers, senior housing complexes, county government offices, neighborhood walking groups, meal sites, and other community settings can have a profound impact on the health of older adults. This section is intended to be inclusive of any organization, site, program, group, or system that provides services to older adults. All of these will be referred to as "providers."

Providers implement programs and policies that affect the knowledge of older adults regarding physical activity, nutrition, and fall prevention. Providers can model good behavior and create a positive norm by being consistent with national messages about nutrition, engaging in regular physical activity, and providing an environment where people are less likely to fall.

The Colorado Physical Activity and Nutrition Program's Older Adult Task Force represents collaboration and participation of state and local health departments, nursing services, community centers, recreation centers, private and governmental programs, volunteer organizations, research institutions, hospitals, and health disparities organizations. The task force members recognize that by working together they can impact a greater number of older adults

with less duplication of services, thus being more cost efficient.

The Older Adult Task Force has not defined an age for this audience. For statistical referencing, age 65 will be used since this is a common starting point for the older adult in this country.

Defining the Problem

Life expectancy has been increasing steadily for the last century, leading to a greater percentage of Americans living as older adults than ever before in history. Currently, people over the age of 64 comprise almost 10 percent of all Coloradans. This population is expected to grow to 20 percent of the population by 2025. The fact that the older adult population is going to double in the coming years and will comprise a fifth of Colorado's citizens mandates that this group be addressed with a comprehensive physical activity and nutrition health promotion program.

Coloradans over age 64 are doing better than other age groups. Older adults are more likely to eat five servings of fruits and vegetables a day. Seventy-four percent of this population also rates their own health as good or excellent. Eighty-seven percent of people in this age group reported that they had had no days of stress, depression, or problems with emotions in the previous month, the highest of all age groups.

However, over half of Coloradans over the age of 64 are at an unhealthy weight, with a Body Mass Index of 25 or more. The *Healthy People 2010* O*bjective* is to decrease the percentage of adults who are at an unhealthy weight from 54 percent to 40 percent. People over the age of 64 are getting the least amount of physical activity of all adult age groups in Colorado. The *Healthy People 2010 Objectives* target a reduction of the number of Coloradans who engage in no

physical activity from 27 percent to 20 percent. Some forms of physical activity that might be encouraged for the general population may not be appropriate for older adults, such as those that are done at a high intensity. Older adults' physical activity should include safety measures and include an emphasis on balance and strength training. It is important that this growing population group is not assumed to have the same needs as other Coloradans and that their potential limitations are factored into physical activity plans.

Colorado Older Adult Strategies and Actions Steps

Communities provide social, political, and cultural environments that affect older adults' knowledge, beliefs, attitudes, and behaviors related to physical activity, nutrition, and fall prevention. Senior centers, faith communities, recreation centers, senior housing complexes, county government offices, neighborhood walking groups, meal sites, and other community settings could provide physical activity or nutrition programs.

Strategies that promote increased physical activity and healthful nutrition choices for older adults include:

- Providing opportunities for older adults to engage in daily, moderate, physical activity that follows current recommendations.
- Develop, support, and advocate for older adult health through better nutrition.
- Develop, support, and advocate for fall prevention programs for older adults.

Case Study: Walking with Arthritis

The County Nursing Service in Prowers, Clear Creek, and Montezuma counties received $2,500 to implement walking programs for people, age 50 and older, afflicted with arthritis. The ultimate goals of these walking programs were to increase mobility and decrease pain while providing cardiovascular benefit. Each county recruited over 40 people to participate and provided pedometers at low or no cost. Programs encouraged participants to set goals and provided a variety of incentives to continue walking. Local businesses donated prizes, and one community linked the seniors' walking project to a walk-to-school initiative. Each agency used volunteers and coordinated with existing community programs to plan for the long-term sustainability of the program. The programs are collecting and reporting information from participants at baseline, after three months, and after six months.

COLORADO OLDER ADULT STRATEGIES AND ACTION STEPS

Strategy 1: Increase opportunities for older adults to engage in daily, moderate, physical activity that follows current recommendations.

Action Steps:

- Implement walking programs through malls, faith-based organizations, senior centers, recreation centers, neighborhoods, and other community locations.
- Advocate for low-cost, age-appropriate, physical activity programs, such as water aerobics, Tai Chi, walking, low-impact aerobics, and other weight-bearing activities in recreation centers, YMCAs, senior centers, and other facilities serving older adults.
- Increase awareness of low- or no-cost resources for physical activity, such as swimming pools, local shopping malls, and community trail systems.
- Facilitate partnerships between schools and older adult groups that encourage opportunities for physical activity.
- Provide transportation to and from physical activity locations for individuals who do not have access to other modes of transportation.
- Promote low-cost healthy living resources or programs that emphasize good nutrition and physical activity.

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Strategy 2: Develop, support, and advocate for older adult health through better nutrition.

Action Steps:

- Encourage consumption of at least five servings of fruits and vegetables each day.
- Incorporate 5 A Day, Food Guide Pyramid, and Dietary Guidelines for Americans messages into existing food and nutrition-assistance programs conducted by statewide agencies (e.g., Food Stamps, food banks, etc.).
- Encourage consumption of three servings of reduced-fat or fat-free dairy products each day.
- Encourage and empower older adults to follow reasonable food and beverage portion sizes.
- Start a program for taking group trips to farmers markets.
- Start community gardens at assisted-living facilities, nursing homes, and senior centers.
- Offer nutrition education classes based on assessment of interest and need, including cooking demonstrations whenever possible.

Strategy 3: Develop, support, and advocate for fall prevention programs for older adults.

Action Steps:

- Encourage regular physical activity that includes balance and strength training to prevent falls.
- Encourage vision examinations for older adults when their health care providers recommend them.
- Encourage older adults to regularly visit their health care provider to assess their risk factors for falls.
- Encourage older adults to review all medications they take (including over-the-counter medications and vitamins) with their health care providers and pharmacists.
- Encourage older adults to modify their homes to reduce fall risks.

Case Study: Active Choices

The Consortium for Older Adult Wellness operates the Active Choices Program from their Rifle and Eagle meal sites. The goal of the Active Choices Program is to offer participants an opportunity to improve their nutrition and physical activity. The meal site identifies and recruits those at moderate to high risk for inactivity and malnutrition from the older adults who participate in congregate meal programs in Garfield and Eagle counties. The project coordinator assigns a "buddy" to each participant to offer encouragement and support by telephone weekly for six months. Participants' relationships with their buddy provide the support many of them need to change health behaviors. Each participant can also work on nutrition and physical activity with the project coordinator, dietitian, or physical therapist who can help choose short-term, realistic behavioral goals and assist in selecting the behavior change to achieve these goals. For more information, contact (303)987-2752.

Case Study: Fall Prevention

St. Anthony's Hospital and the Volunteers of America are working together with support from The Colorado Trust to help older adults who have previously fallen to prevent another fall. Vicky Cassabaum, injury prevention coordinator at St. Anthony's Hospital, used the Centers for Disease Control and Prevention's fall prevention toolkit to create a program focusing on home safety assessments and modifications. Older adults are recruited from those at St. Anthony's Hospital after they have had a primary fall. The Volunteers of America, through the Safety of Seniors Handyman Program, does a fall prevention assessment in participants' homes, and modifies their homes at no cost. The assessments often include: throw rugs, grab bars in bathrooms, shower seats, carbon monoxide and smoke detectors, good lighting, and clutter. They evaluate their program by providing each participant a calendar with two questions each month: what their quality of life has been, and have they fallen in the past month? Those who report that they have fallen are called. The program will track the number of falls over the three-year grant period, so no evaluation data is currently available. Initially only patients in acute-care settings were identified and focused on more immediate needs, so the program's criteria was expanded to include patients in the transitional-care unit and people in the community who had had a fall in the last two years but were not hospitalized. Because of this the program was able to enroll many more participants. For more information, contact (303)629-2788.

ACTIVE COMMUNITY ENVIRONMENTS

Introduction

Public health professionals, community leaders, and concerned citizens are focusing on ways to encourage and increase physical activity because of its many health benefits. Increasingly, the emphasis on walking and bicycling is expanding to include interventions to the physical environment where people live, work, and play

The Colorado Physical Activity and Nutrition Program's Active Community Environments Task Force represents collaborations and partnerships with government, public health, transportation, planning, and design. The task force members support planning for and modifying existing environments to promote physical activity and healthy living.

Defining the Problem

The Centers for Disease Control and Prevention have alerted Americans that the obesity epidemic is on the rise due, in part, to declining levels of physical activity and reduced consumption of healthful foods. America's move from a predominately industrial and physical workforce to a more sedentary office workforce has resulted in a lack of regular physical activity.

Sedentary lifestyles are exacerbated when combined with the overarching elements of community design, technology, and demanding lifestyles. Currently, the average American driver spends 443 hours per year (equivalent to 55 eight-hour work days) behind the wheel of a motor vehicle. Building transportation systems around automobiles hinders pedestrian and bicycle travel. The related design of low-density, single-use land development patterns increase distances between start and end points.

Colorado Active Community Environment Strategies and Action Steps

The following strategies can be achieved through building local partnerships, using multi-sectoralcommunity programs and resources, instituting environmental and policy changes, and through evaluating and refining efforts. Partnerships across industry sectors (e.g., planning, transportation, and health) will foster understanding and build solid relationships for action. Changes in the built environment can positively impact behaviors. Evaluation is a critical component for sustainability and must be part of any community strategy.

COLORADO ACTIVE COMMUNITY ENVIRONMENT STRATEGIES AND ACTION STEPS

Strategy 1: Assess, modify, and improve community planning and design to support and advocate for increased physical activity.

Action Steps:

- Adopt policies to promote active living by design when preparing or updating master plans, transportation plans, open-space plans, and other long-range planning documents.
- Adopt policies that require developers to provide sidewalks, bike lanes, bike parking, shoulders, and off-street trails.
- Adopt sidewalk improvement policies and programs that address safety, lighting, and crosswalks.
- Utilize walkability and bikeability audits to assess issues that impede safe walking and biking.
- Partner with local policy makers, community leaders, and city planners to develop a plan to address walkability and bikeability audit outcomes.
- Implement community-traffic calming programs to slow motor vehicles in residential, commercial, or other zones where walking and biking are to be encouraged (e.g., medians, raised crosswalks, landscaping, and roundabouts).
- Implement safe routes to school programs (e.g., Walking, School Bus, Bike , and Trains).
- Revitalize downtown and town centers as pedestrian and bicycle-friendly areas (e.g., pedestrian malls).
- Raise funds for sidewalk, bike lane, shoulder, and off-street trail construction.

Strategy 2: Develop land-use planning and development policies that integrate "smart growth" principles.

Action Steps:

- Make positive public health impacts a priority in land-use and transportation planning.
- Develop traditional/neighborhood development patterns that improve access and encourage active living.
- Develop models for active living in rural, low-density developments.

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- Locate commercial, retail, and residential development in downtowns, on main streets, and in new town and neighborhood centers so that residents and employees have more destinations to which they can walk and bike.
- Reduce trip distances through mixed-use development.

Strategy 3: Develop school sites and routes that promote active community living.

Action Steps:

- Locate schools within walking distance of the student population.
- Provide safe routes to school that encourage students to walk and bike.
- Develop new school sites and retrofit existing schools to be pedestrian- and bicycle-oriented.
- Strictly control the operation of motor vehicles on and near school sites, at bus stops, and along school routes.
- Work with school administrators and community groups to develop guidelines for utilizing school facilities for hosting meetings, events, etc.

Strategy 4: Develop an integrated parks and/or open space system with recreation facilities near every neighborhood and employment center.

Action Steps:

- Develop neighborhood parks, open space, playgrounds, and recreation facilities in new subdivisions and in existing, underserved residential areas.
- Locate park and recreation facilities where they are easily accessible to residents and employees by walking or biking.
- Develop a system of trails that integrates access to parks, open space, and recreation facilities.

Strategy 5: Develop a balanced transportation system that provides people with options for their mode of travel including transit, walking, bicycling and motor vehicles.

Action Steps:

- Include walking and bicycling accommodations in the design of new roads.
- Retrofit existing roads to accommodate walking and bicycling.
- Maintain roads and sidewalks for easy, safe use by pedestrians and bicyclists.
- Make all routes accessible for people with disabilities.
- Allocate transportation funds so that all projects include the funding needed for bicycling and walking facilities, and an equitable share goes to eliminating pedestrian- and bicycle-related deficiencies in existing roads.
- Utilize traditional "grid" patterns in new community and road development to provide more route choices, reduce trip lengths, and slow motor vehicles.
- Develop a coordinated and connected system of transit, pedestrian, and bicycling services and facilities.

Strategy 6: Reduce the number and severity of pedestrian and bicycle accidents involving motor vehicles.

Action Steps:

- Conduct education campaigns that inform the public of pedestrian, bicyclist, and motor vehicle rights and responsibilities.
- Restrict motor vehicle speeds in neighborhoods, near schools and parks, and in shopping areas (e.g., medians, raised crosswalks, landscaping, and roundabouts).
- Design neighborhoods to reduce the threat of crime to promote walking and biking.
- Collaborate with law enforcement agencies to enforce laws and make streets safer for pedestrians and bicyclists.

DECREASE TELEVISION VIEWING

Introduction

Television is the largest single media source of messages about food. In the late 1970s, researchers estimated that children viewed an average of about 20,000 television commercials a year; in the late 80s, that estimate grew to more than 30,000 a year. television viewing has been linked to obesity, physical inactivity, negative psychological characteristics, smoking, and Attention Deficit Hyperactivity Disorder. Information from the United States Department of Agriculture includes the following:

- Ninety-five percent of fast food restaurants' advertising budgets are spent on television.
- Seventy-five percent of manufacturers' budgets are spent on television.
- Foods most advertised by manufacturers are confectionary, snacks, prepared convenience foods, and soft drinks.
- The budget for food advertised on television was $11 billion in 1997.

Defining the Problem

According to the Centers for Disease Control and Prevention's *Promoting Healthy Eating and Physical Activity For a Healthier Nation,* on average, U.S. children

two to 17 years old spend approximately 2.5-2.75 hours a day watching television. National surveys have shown a positive association between the number of hours children watch television and their risk of being overweight. This correlation has several suggested causes: Television watching may displace calorie-burning physical activity; children may eat more while watching television; television advertisements may induce children to consume more high-calorie foods and snacks; and television viewing may reduce children's metabolic rate. Based on data from young people in grades 9-12, the *Healthy People 2010 Objective* regarding television watching states: "Increase to 75 percent the proportion of adolescents who view television two or fewer hours per school day." The 2003 Colorado Youth Risk Behavior Survey data shows that 33 percent of adolescents in grades 9-12 who participated in the survey watched three or more hours of television per day on an average school day. Few studies have explored strategies for reducing children's television viewing, and more testing and development of such strategies are needed before firm recommendations can be made. However, school-based programs have shown promise in helping to reduce children's television viewing time by helping parents and children monitor and budget the time that the children spend watching television.

Colorado Physical Activity and Nutrition Program Focus

The Colorado Physical Activity and Nutrition Program recommends initiatives to decrease television viewing. The Worksite Task Force promotes "creating a company culture that discourages sedentary behavior, such as television viewing on breaks and sitting for long periods of time." The Early Childhood Task Force suggests "limiting television viewing, and video and computer games while promoting family activities such as active games, sports, or recreational

activities." In support of National TV Turnoff Week in April 2004, the School Site Task Force collaborated with the YMCA of Metropolitan Denver and the Colorado Parks and Recreation Association to promote alternative physical activities for families and children. The Colorado Physical Activity and Nutrition Program believes that decreased television viewing can benefit all Coloradans, not just children, and is working to promote this in such a way as to affect the entire population.

Honorary Proclamation

BILL OWENS
GOVERNOR

COLORADO ON THE MOVE DAY
October 3, 2002

WHEREAS, the people of Colorado value our community's health and the continuous improvement in the quality of our lives; and

WHEREAS, Coloradans are an active people, whether we live and work in our cities, mountains, or plains; and

WHEREAS, The Friends of the Center for Human Nutrition created Colorado On the Move, a statewide initiative to help Coloradans increase their physical activity in simple, measurable ways; and

WHEREAS, The Friends of the Center for Human Nutrition, in partnership with the University of Colorado Health Sciences Center and the Center for Human Nutrition, is committed to continuously improving the health and quality of life we so sincerely value; and

WHEREAS, walking just 2,000 steps more every day can help us prevent a number of important health concerns and stop the weight gain we've experienced in the last decade; and

WHEREAS, together, we can increase our steps with a goal to improve the overall health and physical fitness of people in our great state, keeping Colorado in first place as the leanest state in our nation; and

WHEREAS, Coloradans can monitor and increase physical activity within schools, worksites, and communities, using a simple electronic step counter; and

WHEREAS, the Colorado On the Move initiative is an easy, achievable, and fun way to address this serious health concern;

Now Therefore, I, Bill Owens, Governor of the State of Colorado, do hereby proclaim October 3, 2002, as

COLORADO ON THE MOVE DAY

in the State of Colorado.

GIVEN under my hand and the Executive Seal of the State of Colorado, this third day of October, 2002

Bill Owens
Governor

COLORADO ON THE MOVE™

Introduction

Research has demonstrated that preventive measures such as improved nutrition, tobacco cessation, increased physical activity, and early detection and intervention may prevent heart disease, stroke, and other chronic diseases. Physical activity helps to control weight; contributes to healthy bones, muscles, and joints; reduces falls among the elderly; helps to relieve the pain of arthritis; reduces symptoms of anxiety and depression; and is associated with fewer hospitalizations, physician visits, and medications.

Defining the Problem

According to the Centers for Disease Control and Prevention's *Nutrition and Physical Activity, Capacity Building: Colorado* report, between 1987 and 2000, obesity reached epidemic proportions in the United States, with more than 45 million adults classified as obese. In Colorado, adult obesity (Body Mass Index > 30) rates increased from 6.9 percent in 1990 to 14.9 percent in 2001; the prevalence of overweight (Body Mass Index > 25) among adults also rose from 36.7 percent to 51.6 percent during those years.

Colorado On The Move™

Colorado On The Move™ is a statewide initiative to prevent obesity and improve health by increasing lifestyle physical activity. *Colorado On The Move*™ has programs to increase physical activity in schools, worksites, and communities. The programs use pedometers to help participants monitor and increase physical activity. The goal is to increase walking by 2,000 steps per day (equivalent to walking approximately one mile).

An additional component of *Colorado On The Move*™ is nutrition. The weight gain experienced by most Coloradans each year is due to an excess of less than 100 calories per day. Because our bodies do not store all of the excess calories consumed, decreasing what we eat by 100 calories per day could stop this excess weight gain. The effectiveness of *Colorado On The Move*™ strategies for weight maintenance and weight loss are being researched and evaluated.

Colorado On The Move™ programs in schools, worksites, and communities show participants how to accumulate steps throughout the day. Through a partnership with the University of Colorado Health Sciences Center, the Colorado Physical Activity and Nutrition Program implemented two community interventions in Peetz, Colorado, a rural town, and in the Metro Denver Black Churches, which allowed program coordinators to work in an already established urban and African-American setting to reach high-risk populations. These interventions focused on a physical activity component to encourage participants to walk 2,000 steps a day more than they walked before the program. Pedometers were offered to assist participants in their efforts. Additional worksites and community sites throughout the state also participated. The Metro Denver Black Church Initiative is a member organization represented by 45 churches, 29 of which are members of the Faith and Health Ministries. The Initiative recognizes that congregational

members wish to participate in activities to increase their physical and spiritual well-being. More than 12 churches and 600 individuals participated in *Colorado On The Move*™ by wearing pedometers and collecting data. The data indicated that participants successfully increased steps from baseline by at least 2,000 steps per day.

A second intervention was held in Peetz, Colorado, a small rural town in northeastern Colorado. Approximately half the population participated in the intervention, and data were collected on 50 individuals. Although baseline steps already were at 9,000 steps per day, participants increased by 2,000 steps per day during the intervention. Based on lessons learned from these two pilot projects, *Colorado On The Move*™ has modified the program for better implementation and sustainability.

Colorado Physical Activity and Nutrition Program Focus

The *Colorado On The Move*™ program serves as a model for other states trying to encourage increased physical activity. This program demonstrates the importance of promoting community-based programs that encourage small behavioral changes over time to achieve long-term, positive health outcomes.

It is estimated that since the inception of *Colorado On the Move*™ approximately 300,000 people have participated. *Colorado on the Move*™ has been successfully spreading across the state. Programs have been initiated in one-third of the counties in worksites, schools and communities. Program materials are available at: www.americaonthemove.org.

5 A DAY

Introduction

The National 5 A Day for Better Health Program, initiated in 1991, is a large-scale public/private partnership between the fruit and vegetable industry and the federal government, with the goal of increasing the average consumption of fruits and vegetables in the United States from five to nine servings every day. The specific objectives are: 1) to increase public awareness of the importance of eating five or more servings of fruits and vegetables every day; and 2) to provide consumers specific information about how to incorporate more servings of fruits and vegetables into daily eating patterns.

Fruit and vegetable consumption has been linked to a reduced risk of each of the three leading causes of death in the United States: heart disease, cancer, and stroke. In addition, fruit and vegetable consumption is linked to reducing the risk of diabetes, hypertension, and other chronic diseases. Research has shown that diets including five or more servings of fruits and vegetables a day could prevent at least 20 percent of all cancer incidence. In the majority of studies, a dose-response relationship was found. Those with lower consumption (1 – 1.3 servings or less per day) experience a cancer risk approximately twice as high as those with higher consumption (3 – 5 servings). Fruits and vegetables are sources of vitamins and

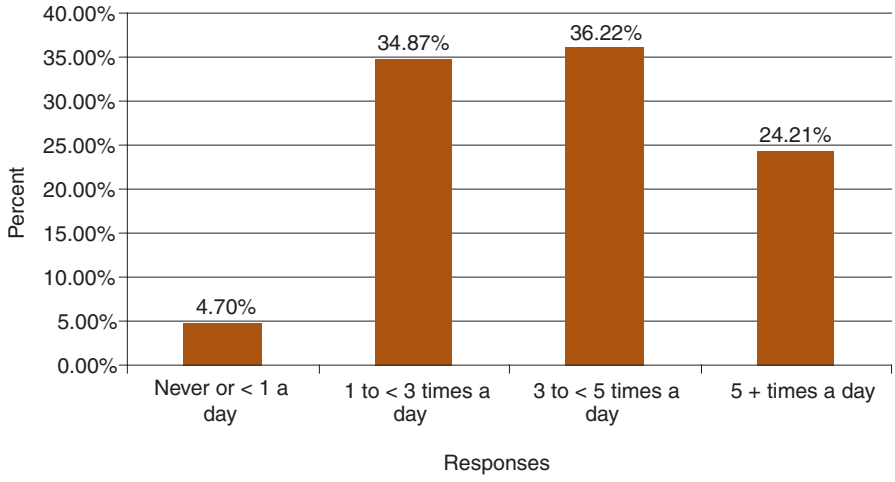
minerals (including vitamins A, C, E, and folate), carotenoids and other antioxidants, and various phytochemicals such as flavonoids. Each of these substances may play a role in reducing risk of disease. More likely, it is a combination of these factors, and others not yet explored, which may grant protection.

Defining the Problem

From 1994 to 2000, the average consumption of fruits and vegetables in Colorado increased from 3.7 to 3.9 daily servings. Also during that time, the percentage of Coloradans who, on average, ate five or more servings of fruits and vegetables each day increased from 21.6 percent to 23.4 percent. The increasing percentage of fruit and vegetable consumption is good news for Colorado. However, as percentages from 2003 illustrate (Figure 26), adequate consumption of fruits and vegetables is increasing very slowly.

Fruits and vegetables are low in calories and fat, and are cholesterol free; therefore, they can be helpful in the prevention of obesity and obesity-related diseases. At a minimum, obesity can be associated with more than one-third

Figure 26. Fruit and vegetable consumption, Colorado residents 2003



of premature deaths in Colorado and approximately 300,000 premature deaths nationwide each year. Obese persons (Body Mass Index 30+) have a 50 to 100 percent greater risk of premature death from all causes compared to persons with a Body Mass Index of 20 to 25. Cardiovascular disease is the leading cause of death in Colorado, with cancer also accounting for significant mortality.

The Colorado Department of Public Health and Environment has set goals for fruit and vegetable consumption in Colorado equal to the national *Healthy People 2010 Objectives*:

- Increase the percentage of Coloradans ages two and older who eat two or more daily servings of fruits to 75 percent by 2010.
- Increase the percentage of Coloradans ages two and older that eat three or more daily servings of vegetables to 50 percent by 2010.

The Colorado 5 A Day Task Force

The Colorado Physical Activity and Nutrition Program's 5 A Day Task Force promotes increased consumption of fruits and vegetables throughout the community by hosting and supporting produce tours in grocery stores, programs promoting National 5 A Day month, health fairs for schools and businesses, and celebrations for National Employee Health and Fitness Day. Partners, representing both the private and public sector, work with the Task Force to promote the 5 A Day campaign. The 5 A Day Task Force is expanding to further reach the public through pilot programs in restaurants. The 5 A Day message is also promoted through the Colorado Physical Activity and Nutrition Program Task Forces, including Early Childhood, School Site, College, Worksite, Older Adult, and Health Disparities.

Wild Oats Uses Field Trips to Teach 5 A Day Lessons

Wild Oats Markets, Inc. partnered with Chicago-based Field Trip Factory to develop the Be a Natural Shopper! Program in most of the 14 Colorado Wild Oats stores and 52 other stores throughout the country.

The goal of the Field Trip Factory program at Wild Oats is to fight the obesity epidemic in children by showing them that 5 A Day can be fun, and eating nutritious foods like fruits and vegetables can help them lead a healthier and happier life.

Each week, approximately 3,000 children in kindergarten through 8th grade tour the natural and organic grocery stores to learn about exercise, the environment, and healthy foods, including fruits and vegetables. The main message in the fresh produce section of the tour is 5 A Day. Children are taught about what 5 A Day means and why fruits and vegetables are good for them. Activities that help keep the children interested and engaged include talking about the shapes, colors, and textures of fruits and vegetables; identifying novel produce like starfruit; guessing "mystery" produce in a paper bag based on touch; and sampling a new fruit and vegetable, like jicama. Kids leave the tour wanting to eat more fruits and vegetables and bring their parents back to show them the new produce they tried.

For more information contact (720) 562-4996 or visit www.wildoats.com

Integrated Nutrition Program in Colorado

What do Chinese tangrams (Chinese vegetables), New Orleans jazz (gumbo), and seed dissection (hummus) have in common? They each illustrate that food is a great way to teach just about anything! The Integrated Nutrition Education Program brings healthy eating to life through food preparation linked to science and literacy standards. The Integrated Nutrition Program is also used in English as a Second Language classes because all activity sheets and recipes are translated into Spanish.

The goal of the Integrated Nutrition Education Program is to instill lifelong healthy eating habits at an early age to help prevent Type 2 diabetes, obesity, cancer, and heart disease later in life. The main program outcome is to get children to eat more vegetables and fruits, and Integrated Nutrition Program links to the School Lunch Program to reinforce this behavior. Program evaluation has found that children receiving the Integrated Nutrition Education Program eat almost a half-serving more of vegetables and fruits at lunchtime than control group children. Other benefits to children include increased nutrition knowledge, increased confidence in food preparation, and improved attitudes about nutrition and the school lunch program.

The program is free to low-income elementary schools through U.S. Department of Agriculture Food Stamp Nutrition Education funding. In 2003/2004, the Integrated Nutrition Education Program was in 25 elementary schools and 14 after-school sites, taught by 400 K-5th grade classroom teachers and reaching over 10,000 children. The Integrated Nutrition Education Program is administered by the Department of Pediatrics at the University of Colorado Health Sciences Center, and the Department of Food Science and Human Nutrition at Colorado State University.

For more information go to www.uchsc.edu/rmprc/schoobased.htm.

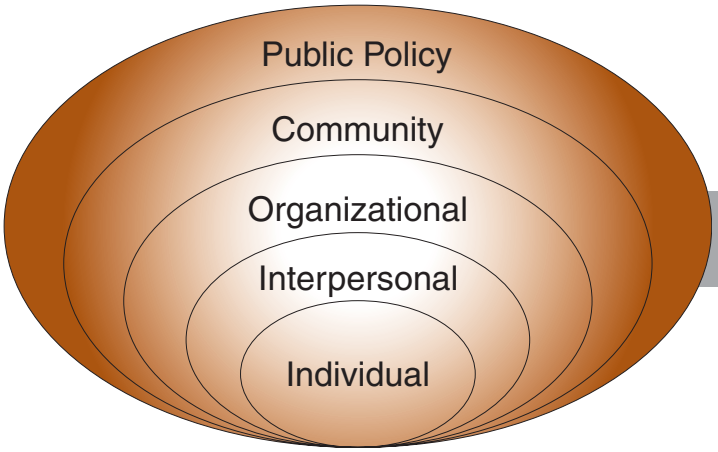
POLICY INITIATIVES

In an effort to promote physical activity and nutrition to prevent over weight and obesity in Colorado, the Colorado Physical Activity and Nutrition Program focuses special attention on policy and environmental change interventions.

The socio-ecological model, Figure 27, offers the Colorado Physical Activity and Nutrition Program great potential and challenges to policy and environmental changes. Multiple disciplines and stakeholders require new approaches to improve health promotion and disease prevention outcomes through public policy. Public health and community leader's roles in policy and environmental change include:

- providing information beyond data to decision makers;
- drafting legislation;
- connecting interested parties;
- conducting needs assessments and evaluations; and
- recommending evidence-based programs.

Figure 27. Socioecological Model



The Colorado Physical Activity and Nutrition Program serves as a catalyst for policy and environmental changes to promote active living and healthy living.

The *Colorado On The Move*™ Day Proclamation, Senate Joint Resolution: *Colorado On The Move*™, Senate Bill 88: To Encourage and Recognize Breastfeeding, Senate Bill 04-103: School Vending Machines and Nutrition, and House Joint Resolution 01-1043: Concerning Colorado Pedestrian Month and Walk To School Day, have helped to systematically address overweight and obesity in Colorado.

Colorado On The Move™ Day Proclamation

Governor Bill Owens joined Dr. Jim Hill from the Center for Human Nutrition, and Dr. Ned Calonge from the Colorado Department of Public Health and Environment, on the west steps of the State Capitol on Thursday, October 3, 2002 at noon to officially announce *Colorado On the Move*™ and to challenge Colorado's schools, businesses, and communities to become healthier.

Senate Resolution

On January 13, 2003, the Colorado General Assembly announced a pedometer competition between the House and the Senate for the session. Legislators are participating in the *Colorado On The Move*™ to increase their daily steps and serve as role models for Colorado citizens:

WHEREAS, the Friends of the Center for Human Nutrition, in partnership with the University of Colorado Health Sciences Center and the Colorado Department of Public Health and Environment are committed to continuously improving the health and quality of life that the citizens of Colorado so sincerely value; and

WHEREAS, Colorado On The Move™ *was created as a statewide initiative to*

help Coloradans increase their physical activity in simple, measurable ways; and

WHEREAS, the Colorado On The Move™ initiative is an easy, achievable, and fun way for all Coloradans, from children to senior citizens, to take care of their bodies, to improve their quality of life, and to address the serious health concerns related to weight gain; and

WHEREAS, walking just 2,000 steps more each day can help prevent a number of important health concerns and help stop the nine-tenths of a pound-per-year average weight gain Coloradans have experienced in the last decade; and

WHEREAS, adding this amount of daily moderate exercise promotes better health, higher energy, increased brainpower, and even happiness; and

WHEREAS, moderate exercise can even help prevent serious health concerns such as obesity, diabetes, cancer, and heart disease; and

WHEREAS, together we can increase our steps with the goal of reducing the prevalence of overweight individuals and obesity in our great state, keeping Colorado in first place as the leanest state in our nation; now, therefore, Be it resolved by the Senate of the Sixty-fourth General Assembly of the State of Colorado, the House of Representatives concurring herein:

(1) That we, the members of the Sixty-fourth General Assembly, value the health of the citizens of Colorado and the continuous improvement of the quality of the citizens' lives.

(2) That it is fitting that the members of the General Assembly participate in the Colorado On The Move™ initiative to serve as highly visible role models for the citizens of Colorado to be more physically active as measured by wearing step counters.

(3) That we, the members of the General Assembly, shall promote increased physical activity through changes in our everyday lives.

Be It Further Resolved, that copies of this Joint Resolution be sent to Governor Bill Owens, University of Colorado Health Sciences Center Chancellor James Shore, the University of Colorado Health Sciences Center, and Acting Executive Director of the Department of Public Health and Environment Doug H. Benevento.

To Encourage and Recognize Breastfeeding

In the 2004 legislative session, Senate Bill 88, giving women the right to breastfeed wherever they have the right to be, was passed. Colorado was one of a handful of states that did not have this type of law previous to the session.

School Vending Machines and Nutrition

Also passed in the 2004 legislative session was Senate Bill 04-103 encouraging school districts to adopt policies to work with contractors to increase the nutritional value of foods offered to students in school vending machines and to phase in higher nutritional standards as vendor contracts are renewed.

Concerning Colorado Pedestrian Month and Walk-To-School Day

The General Assembly declared the month of October, 2001, to be Colorado Pedestrian Month, and October 2, 2001, to be Walk-to-School Day. Coloradans are urged to consider the safety of pedestrians every day.

SURVEILLANCE AND EVALUATION

The primary evaluation objective is to ensure that programs implemented in conjunction with the Colorado Physical Activity and Nutrition Program are monitored, and that outcomes correlate with the *Colorado Physical Activity and Nutrition State Plan 2010*. An evaluation system will be established to support state and local program staff, and local volunteers in assessing the progress, accomplishments, and weaknesses of the Colorado Physical Activity and Nutrition Program.

Methods of evaluation and types of data vary and are customized for each activity. Process evaluation will be used to assess current systems and allow for continual improvement, so that activities stay focused on the Colorado Physical Activity and Nutrition Program's goals and objectives. Given the nature of the Colorado Physical Activity and Nutrition Program activities, not all can be measured or evaluated; however, efforts will be made to evaluate the impact of activities when possible. Pilot interventions will have more extensive examination to prepare for larger projects. The type of activity, the staff required, and funding needed for evaluation will be weighed against the goals of the program.

Programs will benefit from process evaluation through improved protocols and more effective implementation. Process evaluation activities will be guided

by the following concerns: planned versus actual implementation, changes that may increase collaboration and improve implementation success, improvement of relations between involved partners and addressing voids in representation, and the degree to which the audience is being reached.

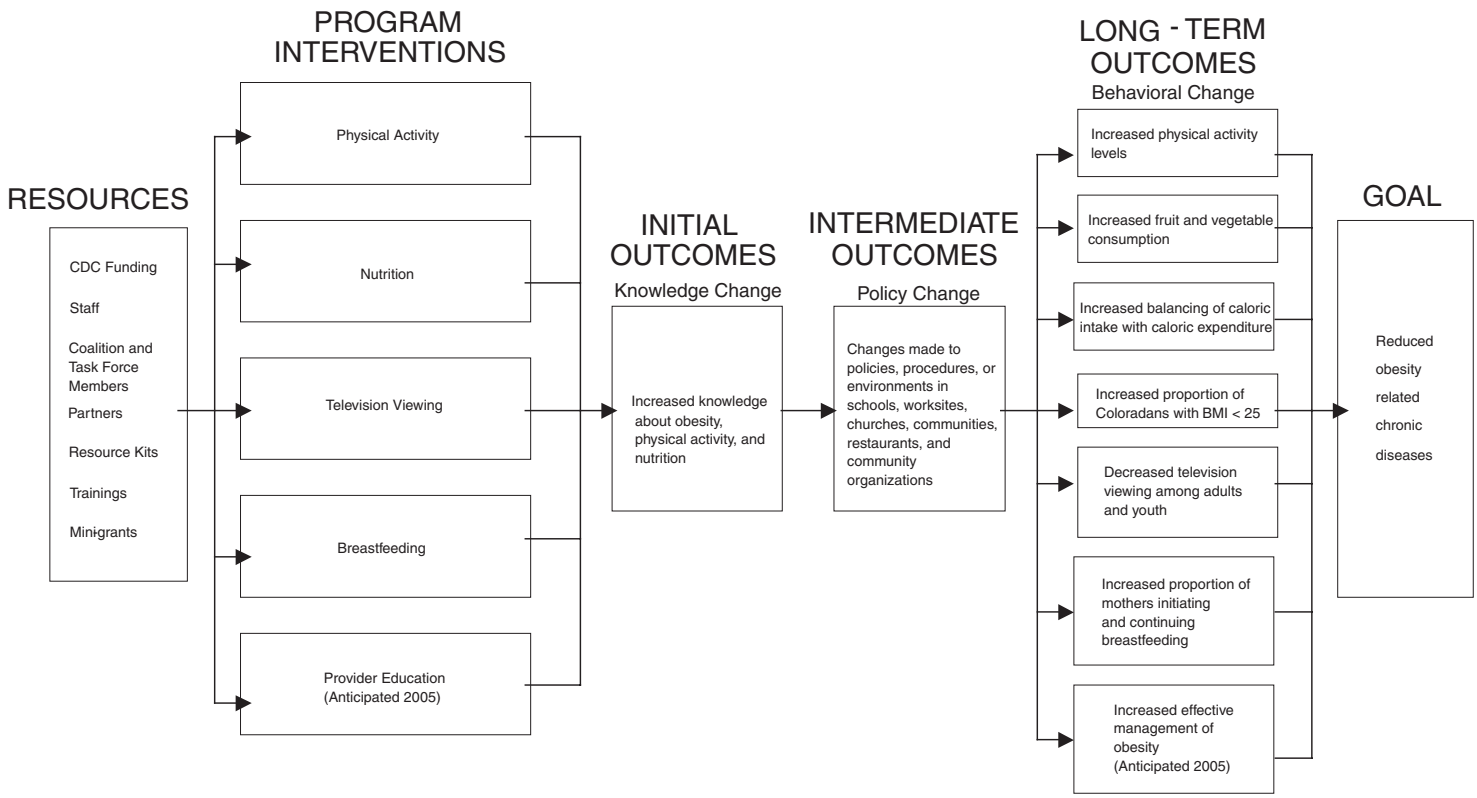
Accordingly, process evaluation activities will consist of three components: program management, participation, and collaboration. Program management will be monitored in a collaborative manner, in which the program evaluator, program staff, field staff (if present), and other contributors will share responsibility for recording and gauging progress. Participation will be gauged through measures of attendance and involvement in programs, to monitor who is being reached, by which methods, and in what context. The success of the Colorado Physical Activity and Nutrition Program activities will be dependent on collaboration between internal and external partners, such as local health departments, university research groups, and local health promotion partnerships. Collaborators also include volunteers, advocates, and representatives from partner agencies and coalitions. Collaboration is evaluated by the amount of interaction and level of effort.

Other evaluation activities will include assessing medium- and long-term changes that can be attributed to program intervention activities, according to the program's logic model (Figure 28).

Outcome evaluation will be guided by the following activities:

- The creation of policy and organizational environments that support the Colorado Physical Activity and Nutrition Program activities.
- The support from local government and community groups for the Colorado Physical Activity and Nutrition Program activities.

Figure 28. Logic Model



- The implementation of program services by organizations and communities in support of the Colorado Physical Activity and Nutrition Program efforts.
- The degree of change in individual behaviors and health outcomes resulting from the Colorado Physical Activity and Nutrition Program interventions.
- The amount and type of positive media coverage of the Colorado Physical Activity and Nutrition Program efforts. Media coverage will be assessed partially through results from a local clipping service and analysis of media reports across the state. These efforts will be used to gauge progress with assessments of positive, neutral, or negative coverage.

All data sources relevant to the Colorado Physical Activity and Nutrition Program activities will be used to support the program, and data gaps will be identified. Changes in individual behaviors and health outcomes will be measured primarily using the Colorado Behavioral Risk Factor Surveillance System, with statewide and select countywide analyses being possible. The primary behavioral outcomes include physical activity levels, fruit and vegetable consumption, weight management efforts, and body mass index.

There are certain surveillance activities that will be critical to evaluation efforts. The inclusion of physical activity, diet, and weight management questions on the Colorado Behavioral Risk Factor Surveillance System will provide data related to the Colorado Physical Activity and Nutrition Program's activities and goals. Over time, change in these measures will show general progress toward the Colorado Physical Activity and Nutrition Program's objectives and suggest additional areas for intervention. Surveillance system indicators will be selected based on the feasibility of continual data gathering, validity of the measures, relevance to the Colorado Physical Activity and Nutrition Program objectives, and biological and social plausibility.

CONCLUSION

The *Colorado Physical Activity and Nutrition Plan 2010* is a road map to address obesity and related chronic diseases. The plan's goals, strategies, and action steps will direct the Colorado Physical Activity and Nutrition Program's activities for the next eight years. Task forces will develop tools to assist schools, worksites, and communities in providing health programs that positively affect the health of all Coloradans.

The Colorado Physical Activity and Nutrition Program will achieve the strategies and action steps of this comprehensive plan by utilizing existing Coalition and task force members, and expanding those partnerships to enhance implementation efforts. The plan has been created to reflect more than 1,000 organizations' objectives in Colorado. By collaborating with partners through a wide variety of venues, the resources available to implement this plan will increase by tenfold.

Colorado has a high level of social capital (i.e., trust and cooperation) that improves the effectiveness of health promotion and disease prevention programs. Using multiple resources to reduce overweight and obesity in Colorado impacts all chronic diseases; thus, leading to a mutual benefit for Colorado citizens and public health practitioners. By investing in Colorado's social capital, partners will see a greater sustained impact.

Our public spiritedness among citizens, our high level of civic participation, and our formation of active, permanent coalitions are evidence of high social capital. It will be leveraged throughout this Plan. The Colorado Physical Activity and Nutrition Program builds upon existing infrastructures that promote health in Colorado, and has become the focal point of health promotion and disease prevention programs by intertwining physical activity and nutrition. For example, the *Colorado Physical Activity and Nutrition State Plan 2010* has incorporated strategies from the *Colorado Cancer Plan 2005, Colorado Arthritis Plan 2005, Colorado Cardiovascular Health Plan 2010*, and *Colorado's Action Plan to Reduce the Burden of Diabetes 2010.*

The Colorado Physical Activity and Nutrition Program will successfully implement the *Colorado Physical Activity and Nutrition State Plan 2010* by:

- Expanding the existing Colorado Physical Activity and Nutrition Program infrastructure.
- Collaborating and coordinating with related partners.
- Expanding physical activity interventions, including *Colorado On The Move*™.
- Developing new interventions that promote nutrition, breastfeeding, and decreased television viewing.
- Developing training and resource materials.
- Identifying, assessing, and developing data sources to further define and monitor the burden of obesity in Colorado.
- Evaluating the progress and impact of the plan, and its interventions.

RESOURCES

Resource Kits

To implement the strategies and action steps defined in the *Colorado Physical Activity and Nutrition State Plan 2010*, the Breastfeeding Promotion, Early Childhood, School Site, Worksite, and Older Adult Task Forces developed resource kits. The intended outcome of the resource kits is to empower individuals, groups, and/or organizations to implement programs or policies that model and promote an environment that supports the development of healthy eating patterns and an active lifestyle.

The resource kits are divided into sections based on the strategies defined in the *Colorado Physical Activity and Nutrition State Plan 2010*. Each section identifies a specific strategy from the *Colorado Physical Activity and Nutrition State Plan 2010*, and identifies action steps that support the strategy. For each action step in the resource kit, information is provided on the importance of the action step, how to implement the action step, and resources available such as Web sites, materials, programs, and evaluation. A benefit of the resource kits is the usefulness in simplifying the process of assessing, planning, and implementing nutrition and physical activity interventions.

The 5 A Day and College Task Forces will be developing resource kits in 2004-2005.

Web Sites

National Sites

Centers for Disease Control and Prevention, 404-639-3311, www.cdc.gov

Healthier US Initiative, www.whitehouse.gov/infocus/fitness

Healthy People 2010, www.healthypeople.gov

National Institutes of Health, www.nih.gov

United States Department of Health and Human Services, 877-696-6775, www.hhs.gov

Nutrition

Agricultural Marketing Services (Colorado farmers markets), www.ams.usda.gov

American Dietetic Association, 800-877-1600, www.eatright.org

Center for Science in the Public Interest, 202-332-9110, www.cspinet.org

Colorado Beef Council, 303-830-7892, www.cobeef.com

Colorado Department of Agriculture, 303-239-4114, www.ag.state.co.us

Colorado Dietetic Association, 866-790-2200, www.eatrightcolorado.org

Colorado Nutrition Network, 970-491-6763, www.cahs.colostate.edu/fshn/NEP/cnn/

Colorado State University Cooperative Extension, 970-491-6281, www.ext.colostate.edu

Dietary Guidelines for Americans and Food Guide Pyramid, www.nutrition.gov

Dole, 800-766-7201, www.dole5aday.com

Food Stamp Program, 800-221-5689, www.fns.usda.gov/fsp

National Cancer Institute, 5 A Day Program, www.5aday.gov

National Dairy Council, www.nationaldairycouncil.org

Produce for Better Health, 888-391-2100, www.5aday.gov, www.aboutproduce.com

United States Department of Agriculture, www.usda.gov

United States Food and Drug Administration, 888-463-6332, www.fda.gov

University of Colorado Center for Human Nutrition, www.uchsc.edu/nutrition

Western Dairy Council, 303-451-7711, www.wdairycouncil.com

Women, Infants and Children, 303-692-2400, http://www.cdphe.state.co.us/ps/wic/wichom.asp

Obesity/Overweight

American Obesity Association, www.obesity.org

Center for Weight and Health, www.cnr.berkeley.edu/cwh/index.html

North American Association for the Study of Obesity, www.obesityresearch.org

The Surgeon General's Call to Action to Prevent and Decrease Overweight and Obesity, www.surgeongeneral.gov/topics/obesity

Physical Activity

America Bikes, 202-833-8080, www.americabikes.org

America Walks, 503-222-1077, www.americawalks.org

American Association for Health, Physical Education, Recreation, and Dance, 800-213- 193, www.aahperd.org

American College of Sports Medicine, 317-637-9200, www.acsm.org

American Heart Association, 303-369-5433, www.americanheart.org, www.justmove.org

Bicycle Colorado, 303-417-1544, www.bicyclecolo.org

Colorado Association for Health, Physical Education, Recreation, and Dance, http://www.coahperd.org

Colorado On The Move™, www.americaonthemove.org

Colorado Parks and Recreation, 303-231-0943, www.cpra-web.org

Governor's Council for Physical Fitness, www.colorado-fitness.org

IDEA Health and Fitness, www.ideafit.com

National Blueprint: Pedestrian and Bicycling Information, www.walkinginfo.org, www.bicyclinginfo.org

National Coalition for Promoting Physical Activity, www.ncppa.org

YMCA, www.ymca.net

Active Community Environments

American Planning Association, www.planning.org

Association of Pedestrian and Bicycle Professionals, www.apbp.org

Center for Livable Communities, www.lgc.org/clc/center.html

Congress for the New Urbanism, www.cnu.org

Joint Center for Sustainable Communities, www.usmayors.org/sustainable

Partnershup for a Walkable America, www.nsc.org/walk/wkabout.htm

Pedestrians Educating Drivers on Safety, Inc., www.peds.org/index.htm

Rails-to-Trails Conservancy, www.railtrails.org

Smart Growth Network, www.smartgrowth.org/index2.html

State of Oregon - Oregon Bicycle and Pedestrian Program, www.odot.state.or.us/techserv/bikewalk/index.htm

Transportation Research Information Service, www.nationalacademies.org/trb/tris.nsf

Urban Land Institute, www.uli.org

Walkable Communities, www.walkable.org

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