Obesity, Nutrition, and Physical Activity
University of Colorado Hospital
COMMUNITY HEALTH NEEDS ASSESSMENT
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OVERWEIGHT AND OBESITY

OVERVIEW

Overweight and obesity are both labels for ranges of weight that are greater than what is generally considered healthy for a given height. The terms also identify ranges of weight that have been shown to increase the likelihood of certain diseases and other health problems.

For adults, overweight and obesity ranges are determined by using weight and height to calculate a number called the "body mass index" (BMI). BMI is used because, for most people, it correlates with their amount of body fat. BMI is calculated as weight in kilograms divided by height in meters squared.

An adult who has a BMI between 25 and 29.9 is considered overweight. An adult who has a BMI of 30 or higher is considered obese.

It is important to remember that although BMI correlates with the amount of body fat, BMI does not directly measure body fat. As a result, some people, such as athletes, may have a BMI that identifies them as overweight even though they do not have excess body fat.

For children and teens, BMI ranges above a normal weight have different labels. Additionally, BMI ranges for children and teens are defined so that they take into account normal differences in body fat between boys and girls and differences in body fat at various ages.

<table>
<thead>
<tr>
<th>BMI Category</th>
<th>BMI Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Underweight</td>
<td>Less than 5th percentile</td>
</tr>
<tr>
<td>Healthy Weight</td>
<td>5th through 84th percentile</td>
</tr>
<tr>
<td>Overweight</td>
<td>85th through 94th percentile</td>
</tr>
<tr>
<td>Obese</td>
<td>95th percentile or greater</td>
</tr>
</tbody>
</table>

There are two major surveys conducted in the United States that report adult obesity prevalence: the National Health and Nutrition Examination Survey (NHANES) and the Behavioral Risk Factor Surveillance System (BRFSS). The Centers for Disease Control oversees both surveys. NHANES reports national data only, and uses direct measurements of height and weight to calculate obesity. In other words, a survey worker actually visits the home and measures the respondent's height and weight. BRFSS reports national data and state data. Each state then chooses whether or not to collect enough data to report results on a county level basis. Height and weight measurements are self-reported in the BRFSS survey.

1 Centers for Disease Control, [http://www.cdc.gov/obesity/defining.html](http://www.cdc.gov/obesity/defining.html)
Obesity prevalence rates reported by the NHANES survey and BRFSS survey are not comparable due to the differences in data collection. It has been found that when survey participants are asked to report their own height and weight, they often give inaccurate estimates. Care must be taken not to compare data between the two surveys. The NHANES survey was used by the CDC to set the Healthy People 2020 Obesity goals. Colorado data is not comparable to Healthy People 2020 obesity goals.

**CAUSES**

Overweight or obesity is caused by consuming more calories than are expended. The United States has seen two general behavioral trends that have had an effect on overweight and obesity within the population: 1) a shift in diet toward energy-dense foods high in fat and sugars but low in vitamins and micronutrients, and 2) decreased physical activity due, in part, to changes in both workplace behaviors and modes of transportation. Compounding these behavioral trends of unhealthy dietary habits and sedentary lifestyles are other environmental, cultural and socioeconomic factors. For example, processed convenience foods have high amounts of sugar, fat and salt, and are easily accessible and inexpensive. Also, Americans spend most of their time engaged in behaviors that expend very little energy.

Because weight is influenced by energy (calories) consumed and expended, interventions to improve weight can support changes in diet or physical activity. They can help change individuals' knowledge and skills, reduce exposure to foods low in nutritional value and high in calories, or increase opportunities for physical activity. Interventions can help prevent unhealthy weight gain or facilitate weight loss among obese people. They can be delivered in multiple settings, including health care settings, worksites, or schools.

**CO-EXISTING CHRONIC CONDITIONS**

Research has shown that as weight increases to reach the levels referred to as "overweight" and "obesity," the risks for the following conditions also increases:

- Coronary heart disease
- Type 2 diabetes
- Cancers (endometrial, breast, and colon)
- Hypertension (high blood pressure)
- Dyslipidemia (for example, high total cholesterol or high levels of triglycerides)

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1 National Institutes of Health, [http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1557888/](http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1557888/)
3 Ibid.
- Stroke
- Liver and Gallbladder disease
- Sleep apnea and respiratory problems
- Osteoarthritis (a degeneration of cartilage and its underlying bone within a joint)
- Gynecological problems (abnormal menses, infertility)

**ECONOMIC COSTS OF OBESITY**

In Colorado, medical spending attributable to obesity was estimated at $874 million dollars in 2003, with $139 million in Medicare costs and $158 million in Medicaid costs. These estimates for Colorado likely underestimate the true costs of overweight and obesity because they do not include the indirect costs of obesity or the direct or indirect costs of overweight.

**SOCIAL DETERMINANTS OF OBESITY**

Certain groups at high-risk for obesity have been identified by the Colorado Department of Public Health:

- Adults ages 45–64 years
- Non-Hispanic blacks
- Hispanics
- Adults who are non-high school graduates
- Southeast Colorado residents

**OBESITY GOALS**

Reducing obesity has been identified as one of Colorado’s greatest opportunities for ensuring the health of citizens and has been selected as a top ten “Winnable Battle” by the Colorado Department of Public Health and Environment. In January, 2012, CDPHE released three obesity goals for 2016:

- Decrease the percentage of Colorado high school students who are overweight or obese to 17 percent.
- Decrease the percentage of Colorado children aged 2-14 years who are overweight or obese to 20 percent.

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8 Ibid.
9 [http://www.cdphe.state.co.us/hs/winnableBattles/obesity.html](http://www.cdphe.state.co.us/hs/winnableBattles/obesity.html)
- Decrease the percentage of Colorado adults who are overweight or obese to 50 percent.

The most recent review of overweight and obesity conducted by the Colorado Department of Public Health is a report titled, *The Weight of the State: 2009 Report on Overweight and Obesity in Colorado*\(^\text{10}\), which served as a model for this report.

The adult prevalence of overweight and obesity is highest in Adams County. Prevalence rates in Arapahoe, Denver, and Douglas Counties are below the State. Douglas County has overweight and obesity prevalence rates in adults that are already meeting the 2016 Colorado Winnable Battle Goal.

Figure 1: Overweight and Obese Adults

ADULT OVERWEIGHT AND OBESITY DEMOGRAPHICS

Demographic factors impacting obesity follow the same general patterns in Colorado as the Nation overall.\textsuperscript{12}

Obesity prevalence is approximately the same in females and males overall. Males have a greater prevalence of overweight than females.

An analysis of 2008 obesity rates demonstrated a significantly lower prevalence of obesity in adult females than adult males within the income group of $50,000 or more.\textsuperscript{13}

Adults aged 18-24 have significantly lower overweight prevalence than all other age groups. Adults aged 24-34 have significantly higher overweight prevalence than the younger age group, but significantly lower than older age groups. There is no significant difference in overweight prevalence in adults 35 and over. Adults aged 45-64 have a significantly higher prevalence of obesity than other age groups. 18-24 year olds have a significantly lower prevalence of obesity than all other age groups.


\textsuperscript{13} Ibid.

\textsuperscript{14} Chart Source: Behavioral Risk Factor Surveillance System, Colorado Department of Public Health and Environment.

\textsuperscript{15} Ibid.
There were no significant differences in overweight adults by racial/ethnic groups. Non-Hispanic White adults had a significantly lower obesity prevalence compared with non-Hispanic Black or Hispanic adults. The “other” race category combined several races such as Asian, Pacific Islander, American Indian and Alaskan Native. Obesity prevalence for the “other” race did not differ significantly from other groups.

Colorado adults with at least some college education had a significantly lower prevalence of obesity than adults with lower levels of education. There were no significant differences in overweight by education.

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Overall, the prevalence of overweight and the prevalence of obesity did not vary significantly between income groups in 2009/2010.

![Figure 6: Overweight and Obese Adults by Income](chart)

A recent analysis completed by the Colorado Department of Public Health shows a higher percentage of overweight and obese adults are below 150% of the federal poverty level. However, these differences are not statistically significant.

![Figure 7: Overweight and Obese Adults by Federal Poverty Level](chart)

CDPHE has completed further demographic analysis that has identified the following groups at high risk for obesity:

- Adults ages 45–64 years (39 percent overweight, 22.8 percent obese)
- Non-Hispanic blacks (36.8 percent overweight, 26.6 percent obese)
- Hispanics (40.8 percent overweight, 25.5 percent obese)
- Adults who are non-high school graduates (37.9 percent overweight, 22.1 percent obese)
- Southeast Colorado residents (26 percent overweight, 27 percent obese)

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Colorado is the only state with obesity prevalence rates under 20% as of 2010.\textsuperscript{21} Compared to the 2007-2009 obesity prevalence rate of 19.1%, Colorado saw a significant increase to 19.8% for the combined years of 2008-2010. During the same time period, sixteen states saw a significant increase in obesity. No state experienced a significant decrease in obesity.

While Colorado has a lower prevalence of obese adults than the nation, rates continue to increase at a similar pace to the rest of the country. From 1995 through 2008, obesity in Colorado increased 89%.\textsuperscript{23} The prevalence of overweight has remained steady in both the Nation and State.

\textsuperscript{21} F as in Fat: How Obesity Threatens America’s Future 2011, Trust for America’s Health and Robert Wood Johnson Foundation (Data Source: Behavioral Risk Factor Surveillance System, 2008-2010 Combined Data)
\textsuperscript{22} Ibid.
\textsuperscript{23} Colorado Physical Activity and Nutrition Program, The Weight of the State: 2009 Report on Overweight and Obesity (Denver: Colorado Department of Public Health and Environment, 2009.)
\textsuperscript{24} Chart Source: Behavioral Risk Factor Surveillance System, Colorado Department of Public Health and Environment. For State and County data, two years of data are combined. National data averages single years, 2004, 2006, 2008, 2010 as reported by CDC BRFSS.
YOUTH OVERWEIGHT AND OBESITY

YRBS Survey: Percentage of students who were obese (i.e., at or above the 95th percentile for body mass index, by age and sex)

There were no significant differences in the prevalence of overweight or obesity between grades in Colorado high-school students. Males and females had a similar prevalence of both overweight and obesity. Colorado does not report county or health statistic region data for youths.

YOUTH OBESITY TRENDS

The prevalence of obesity among adolescents has increased similar to the prevalence in the adult population.\textsuperscript{26} Colorado data is reported differently from year to year during this time period and cannot be compared.

\textsuperscript{25} Chart Source: Youth Risk Behavior Surveillance System, Colorado Department of Public Health and Environment and Centers for Disease Control (National data).

\textsuperscript{26} Colorado Physical Activity and Nutrition Program, The Weight of the State: 2009 Report on Overweight and Obesity (Denver: Colorado Department of Public Health and Environment, 2009.)

\textsuperscript{27} Chart Source: Youth Risk Behavior Surveillance System, Centers for Disease Control.
The prevalence of overweight and obesity among children has increased similar to the prevalence in the adult population.\(^29\)

According to CDPHE\(^30\), overweight and obesity trends from 2004 to 2008 have remained stable for children ages 2-14, but “it is not possible to determine if childhood obesity trends follow national trends. In other words, the obesity prevalence might or might not have increased since the 1980s or 1990s.” This is due to a lack of historical data.

Both Arapahoe and Douglas County has overweight and obesity prevalence rates lower than the state and Douglas County is already meeting the Colorado 2016 goal of 20%. Both Adams and Denver Counties have rates higher than the State.

\(^{28}\) Chart Source: CDPHE, Colorado Child Health Survey, Combined Years 2007-2009  
\(^{30}\) Ibid
In 2008, approximately the same percentage of children in each age group was overweight and obese. The prevalence of obesity among non-Hispanic White children was significantly lower than the prevalence for non-Hispanic Black children during the combined years 2006-2008. Asian children also had lower obesity prevalence than Hispanic children. The obesity prevalence for children who were non-Hispanic Black, Hispanic or other race/ethnicity was not significantly different. The prevalence of overweight across race/ethnicity groups was not significantly different.

A more recent CDPHE analysis examined rates by federal poverty levels. Children living at less than 150% of the federal poverty level have significantly higher rates of overweight and obesity.

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NUTRITION

OVERVIEW

The key to achieving and maintaining a healthy weight isn't about short-term dietary changes. It's about a lifestyle that includes healthy eating, regular physical activity, and balancing the number of calories consumed with the number of calories the body uses.\(^{33}\)

A healthy lifestyle involves many choices. Among them, choosing a balanced diet or eating plan. According to the Dietary Guidelines for Americans, a healthy eating plan:\(^{34}\)

- Emphasizes fruits, vegetables, whole grains, and fat-free or low-fat milk and milk products
- Includes lean meats, poultry, fish, beans, eggs, and nuts
- Is low in saturated fats, trans fats, cholesterol, salt (sodium), and added sugars
- Stays within your daily calorie needs

Good nutrition is important to the growth and development of children. A healthful diet also helps Americans reduce their risks for many health conditions, including:\(^{35}\)

- Overweight and obesity
- Malnutrition
- Iron-deficiency anemia
- Heart disease
- High blood pressure
- Dyslipidemia (poor lipid profiles)
- Type 2 diabetes
- Osteoporosis
- Oral disease
- Constipation
- Diverticular disease
- Some cancers

Demographic characteristics of those with a more healthful diet vary with the nutrient or food studied. However, most Americans need to improve some aspect of their diet.\(^{36,37}\)


\(^{34}\) [http://www.cdc.gov/healthyweight/healthy_eating/index.html](http://www.cdc.gov/healthyweight/healthy_eating/index.html)

Social factors thought to influence diet include:\textsuperscript{38}

- Knowledge and attitudes
- Skills
- Social support
- Societal and cultural norms
- Food and agricultural policies
- Food assistance programs
- Economic price systems

The Centers for Disease Control has historically recommended five servings of fruit and vegetables per day, and data on fruit and vegetable consumption is reported relevant to these recommendations. Recently, however, the CDC has moved toward individualized fruit and vegetable recommendations based on age, gender, and level of physical activity.\textsuperscript{39}

\textsuperscript{38} US Department of Agriculture (USDA), Center for Nutrition Policy and Promotion. Diet quality of low-income and higher-income Americans in 2003-04 as measured by the Healthy Eating Index, 2005. Nutrition Insight, 2008 December, no. 42.
\textsuperscript{39} \url{http://www.fruitsandveggiesmatter.gov/}
ADULT FRUIT AND VEGETABLE CONSUMPTION

**BRFSS Survey Question:** What is your average frequency of fruit and vegetable consumption per day?

The prevalence of adults eating the recommended amount of fruit and vegetables is slightly higher in Colorado than the Nation.

Adults in Douglas, Arapahoe, and Denver Counties consume fruit and vegetables at a rate equivalent to the State. Adams County residents consume fewer fruits and vegetables than the State overall. All rates fall significantly short of the Healthy People 2010 goal of 75%. The HP 2010 goal has been adopted by Colorado as the state goal.40

Healthy People 2020 Fruit and Vegetable Goals are not comparable to this data.

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**Figure 15: Adult Fruit and Vegetable Consumption**

![Figure 15: Adult Fruit and Vegetable Consumption](http://www.cdphe.state.co.us/pp/COPAN/5-a-day/5ADAYCoalition.html)


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ADULT FRUIT AND VEGETABLE CONSUMPTION DEMOGRAPHICS

Significantly more adult females eat the recommended amount of fruit and vegetables per day than males.

Although it appears that more older Americans meet the daily consumption recommendations of fruit and vegetables, there are no significant differences between age groups.

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Figure 16: Adult Fruit and Vegetable Consumption by Gender

Figure 17: Adult Fruit and Vegetable Consumption by Age

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44 Ibid.
Significantly more Non-Hispanic White adults eat the recommended amount of fruit and vegetables than other race/ethnicity groups. There were no significant differences between the other race/ethnicity groups.

Adults with income $50,000 and above, as well as adults with some college education or more, met the fruit and vegetable consumption recommendation more often than adults with less income or less education.

According to the Centers for Disease Control, both State and National rates of fruit and vegetable consumption fell far short of Healthy People 2010 targets as of 2009 and

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**Figure 18: Adult Fruit and Vegetable Consumption by Race/Ethnicity**

**Figure 19: Adult Fruit and Vegetable Consumption by State**

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45 [http://www.fruitsandveggiesmatter.gov/health_professionals/statereport.html#Behavioral](http://www.fruitsandveggiesmatter.gov/health_professionals/statereport.html#Behavioral)
consumption trends have remained relatively flat.\textsuperscript{46} Considerable variability occurred between states, which may be related to differences in population demographics, access, availability, and affordability of produce.

The average consumption of fruit and vegetables in Colorado increased from 3.7 to 3.9 daily servings from 1994 to 2000. During the same time period, the percentage of Coloradans who, on average, ate 5 or more servings of fruit and vegetables each day, increased from 21.6\% to 23.4\%.\textsuperscript{47}

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.

- Goal 1: Increase the percentage of Coloradans ages 2 and older who eat 2 or more daily servings of fruits to 75\% by 2010.
- Goal 2: Increase the percentage of Coloradans ages 2 and older who eat 3 or more daily servings of vegetables to 50\% by 2010.

### YOUTH FRUIT AND VEGETABLE CONSUMPTION

**YRBS Survey: Percentage of Students Who ate Fruits and Vegetables Five or More Times per Day During the Past Seven Days**

The prevalence of Colorado high-school students eating the recommended amount of fruit and vegetables per day in 2009 was 24.4\%. High-school aged males consumed significantly more fruit and vegetables per day than females. Colorado does not report county or health statistic region data for youths.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{chart.png}
\caption{Youth Fruit and Vegetable Consumption by Gender\textsuperscript{48}}
\end{figure}

\textsuperscript{46} [http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5935a1.htm?s_cid=mm5935a1_w](http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5935a1.htm?s_cid=mm5935a1_w)

\textsuperscript{47} [http://www.cdphe.state.co.us/pp/COPAN/5-a-day/5ADAYCoalition.html#5 A Day Goals for Colorado](http://www.cdphe.state.co.us/pp/COPAN/5-a-day/5ADAYCoalition.html#5 A Day Goals for Colorado)

\textsuperscript{48} Chart Source: Youth Risk Behavior Surveillance System, Colorado Department of Public Health and Environment and Centers for Disease Control (National data).
CHILDHOOD FRUIT AND VEGETABLE CONSUMPTION

Colorado Child Health Survey: Percent of children (aged 1-14 years) who ate fruit 2 or more times per day and vegetables 3 or more times per day 2007-2009

The differences in prevalence rates of fruit and vegetable consumption in children between counties are not statistically significant.

More than 1000% increase in fruit and vegetable consumption rates in children living in these counties is necessary to meet the Healthy People 2010 goal. Colorado has adopted the HP 2010 goal as the state goal.

CHILDREN FRUIT AND VEGETABLE CONSUMPTION DEMOGRAPHICS

- Children aged 2 to 5 years had significantly higher total fruit and juice intakes than 6- to 11- and 12- to 18-year-olds.
- Total vegetable and french fry intake was significantly higher among 12- to 18-year-old adolescents.
- Boys consumed significantly more fruit juice and french fries than girls.
- Non-Hispanic African-American children and adolescents consumed significantly more dark-green vegetables and fewer mean deep-yellow vegetables than Mexican-American and non-Hispanic white children and adolescents.
- Children and adolescents most at risk for higher intakes of energy-dense fruits and vegetables (fruit juice and french fries) were generally boys, and adolescents, at risk for overweight or overweight and living in households below 350% of the poverty level.

CHILDHOOD FRUIT AND VEGETABLE CONSUMPTION TRENDS

The prevalence of children in Colorado eating at least two servings of fruit and three servings of vegetables experienced a significant increase between 2009 and 2010.

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51 Chart Source: Colorado Department of Public Health and Environment, Colorado Child Health Survey
YOUTH SODA CONSUMPTION

YRBS Survey: During the past 7 days, how many times did you drink a can, bottle, or glass of soda or pop, such as Coke, Pepsi, or Sprite? (Do not include diet soda or diet pop.)

High-school students in Colorado drink fewer sodas per day than the Nation. Males drink significantly more sodas than females; particularly males aged sixteen or seventeen. Colorado does not report county or health statistic region data for youths.

Figure 23: Youth Soda Consumption

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52 Chart Source: Youth Risk Behavior Surveillance System, Colorado Department of Public Health and Environment and Centers for Disease Control (National data).
CHILDHOOD SUGAR-SWEETENED BEVERAGE CONSUMPTION

Colorado Child Health Survey: Percent of children aged 1-14 years who consumed sugar-sweetened beverages one or more times per day

Strong evidence supports the conclusion that greater intake of sugar-sweetened beverages is associated with increased adiposity in children.53

Due to the small number of surveys conducted, differences seen on his chart between counties are not statistically significant.

Demographic information is not available for this data.

Figure 24: Children Sugar-Sweetened Beverage Consumption54

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54 Chart Source: CDPHE, Colorado Child Health Survey. Limited county data is available.
PHYSICAL ACTIVITY

OVERVIEW

In 2008, the Department of Health and Human Services released the first-ever publication of national guidelines for physical activity, *Physical Activity Guidelines for Americans*. Regular physical activity includes participation in moderate and vigorous physical activities and muscle-strengthening activities.

More than 80 percent of adults do not meet the guidelines for both aerobic and muscle-strengthening activities. Similarly, more than 80 percent of adolescents do not do enough aerobic physical activity to meet the guidelines for youth.

Physical activity has been defined as any bodily movement produced by the contraction of skeletal muscle that increases energy expenditure above a basal level. Bodily movement can be divided into two categories:

- **Baseline activity** refers to the light-intensity activities of daily life, such as standing, walking slowly, and lifting lightweight objects. People vary in how much baseline activity they do. People who do only baseline activity are considered to be inactive. They may do very short episodes of moderate- or vigorous-intensity activity, such as climbing a few flights of stairs, but these episodes aren't long enough to count toward meeting the Guidelines. The Guidelines don't comment on how variations in types and amounts of baseline physical activity might affect health, as this was not addressed by the Advisory Committee report.

- **Health-enhancing physical activity** is activity that, when added to baseline activity, produces health benefits. Brisk walking, jumping rope, dancing, lifting weights, climbing on playground equipment at recess, and doing yoga are all examples of physical activity. Some people (such as postal carriers or carpenters on construction sites) may get enough physical activity on the job to meet the Guidelines.

Regular physical activity can improve the health and quality of life of Americans of all ages, regardless of the presence of a chronic disease or disability. Among adults and older adults, physical activity can lower the risk of:

- Early death
- Coronary heart disease
- Stroke

• High blood pressure
• Type 2 diabetes
• Breast and colon cancer
• Falls
• Depression

Among children and adolescents, physical activity can:
• Improve bone health
• Improve cardiorespiratory and muscular fitness
• Decrease levels of body fat
• Reduce symptoms of depression
• For people who are inactive, even small increases in physical activity are associated with health benefits

Personal, social, economic, and environmental factors all play a role in physical activity levels among youth, adults, and older adults. Understanding the barriers to and facilitators of physical activity is important to ensure the effectiveness of interventions and other actions to improve levels of physical activity.

Factors negatively associated with adult physical activity include:58
• Advancing age
• Low income
• Lack of time
• Low motivation
• Rural residency
• Perception of great effort needed for exercise
• Overweight or obesity
• Perception of poor health
• Being disabled

**KEY GUIDELINES**

Substantial health benefits are gained by doing physical activity according to the Guidelines presented below for different groups.59

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CHILDREN AND ADOLESCENTS (AGED 6–17)

- Children and adolescents should do 1 hour (60 minutes) or more of physical activity every day.
- Most of the 1 hour or more a day should be either moderate- or vigorous-intensity aerobic physical activity.
- As part of their daily physical activity, children and adolescents should do vigorous-intensity activity on at least 3 days per week. They also should do muscle-strengthening and bone-strengthening activity on at least 3 days per week.

ADULTS (AGED 18–64)

- Adults should do 2 hours and 30 minutes a week of moderate-intensity, or 1 hour and 15 minutes (75 minutes) a week of vigorous-intensity aerobic physical activity, or an equivalent combination of moderate- and vigorous-intensity aerobic physical activity. Aerobic activity should be performed in episodes of at least 10 minutes, preferably spread throughout the week.
- Additional health benefits are provided by increasing to 5 hours (300 minutes) a week of moderate-intensity aerobic physical activity, or 2 hours and 30 minutes a week of vigorous-intensity physical activity, or an equivalent combination of both.
- Adults should also do muscle-strengthening activities that involve all major muscle groups performed on 2 or more days per week.

OLDER ADULTS (AGED 65 AND OLDER)

- Older adults should follow the adult guidelines. If this is not possible due to limiting chronic conditions, older adults should be as physically active as their abilities allow. They should avoid inactivity. Older adults should do exercises that maintain or improve balance if they are at risk of falling.
ADULT PHYSICAL ACTIVITY

BRFSS Survey Question: During the past 30 days, other than your regular job, did you participate in any physical activities?

The percentage of adults who are physically active in Colorado is significantly higher than the national percentage.

The percentage of adults in Douglas and Arapahoe Counties who are physically active is higher than the State rate, while Denver and Adams County rates are lower.

Neither the Healthy People 2020 goals nor the new Physical Activity Guidelines are comparable to Colorado data.

Figure 25: Adult Physical Activity

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ADULT PHYSICAL ACTIVITY DEMOGRAPHICS

A significantly lower percentage of adult females participated in physical activity than males.

Physical activity varied by age. Younger adult age groups are significantly more active compared with adults 65 years and older.

Physical activity levels varied by race/ethnicity, Non-Hispanic White adults are significantly more physically active than all other race/ethnicities. “Other” adults are significantly more active than both Non-Hispanic Black adults and Hispanic adults. There was no significant difference between Non-Hispanic Black and Hispanic adults.

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62 Ibid.
64 Ibid.
Physical activity levels by annual household income followed a similar pattern as that seen by education level. Adults with lower household incomes are less physically active. Differences between categories are statistically significant.

**YOUTH PHYSICAL ACTIVITY**

**YRBS Survey:** Percentage of students who were physically active doing any kind of physical activity that increased their heart rate and made them breathe hard some of the time for a total of 60 minutes every day in the past 7 days.

In Colorado in 2009, 26.9% of high-school students met the Department of Health and Human Services recommendation of 60 minutes of physical activity per day. This percentage is above the Healthy People goal set for 2020.

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64 Chart Source: Behavioral Risk Factor Surveillance System, Colorado Department of Public Health and Environment.

65 Chart Source: Youth Risk Behavior Surveillance System, Colorado Department of Public Health
CHILDREN PHYSICAL ACTIVITY

Colorado Child Health Survey: The percent of children who were physically active at least 60 minutes/day for the past 7 days

In 2009/2010, 33.8% of Colorado children met the Department of Health and Human Services recommendation to spend 60 minutes per day doing physical activity. There is no Healthy People 2020 goal for this measure.

Due to the small number of surveys conducted, differences seen on his chart between counties are not statistically significant.

Demographic information is not available for this data.

Figure 31: Children Physical Activity

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66 Chart Source: Colorado Child Health Survey, Colorado Department of Public Health. Boulder and Broomfield data is reported as Health Statistic Region 16. Limited county data is available.
**CHILDREN “SCREEN TIME”**

*Colorado Child Health Survey: The percent of children who spent 2 hours or less per day watching TV or videos, playing video games or playing on a computer*

Health experts recommend that parents limit combined screen time from television, DVDs, computers, and video games to 2 hours per day or less.67

The prevalence of children reporting screen time of two hours or less is greater in Adams and Denver Counties than for the State overall. Douglas and Arapahoe County rates are at and below the State rate.

All counties need improvement to reach the HP 2020 goal.

National and HP 2020 data, however, is measured using a different survey than Colorado, therefore results may not be directly comparable.

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68 Chart Source: Colorado Child Health Survey, Colorado Department of Public Health. Data reported by Health Statistic Region. The Healthy People 2020 Goal is for children and adolescents aged 6-14 years.
CHILDREN “SCREEN TIME” DEMOGRAPHICS

Prevalence of Television Watching (Children Ages 2-14 Years) and Computer and Video Game Use (Children Ages 5-14 Years) by Race/Ethnicity – Colorado, 2006-2008 (Combined Years)\(^{69}\)

Non-Hispanic Whites and Asians were significantly more likely to watch television for two hours per day or less compared with non-Hispanic Blacks. Non-Hispanic Whites also were significantly more likely to watch two hours of television or less compared with Hispanics. Computer or video game use did not differ significantly between racial/ethnic groups.

CHILDREN “SCREEN TIME” TRENDS

From 2004 through 2008, the prevalence of television watching for two hours per day or less remained relatively stable in Colorado.\(^ {70}\) The prevalence of computer or video game use for two hours per day or less also remained stable during the same period. In 2008, most children ages 2-14 watched television for two hours per day or less, and most children aged 5-14 years used a computer or played video games for two hours per day.


\(^{70}\) Ibid.
COLORADO PHYSICAL ACTIVITY AND NUTRITION (COPAN) PROGRAM

In 2003, the Colorado Department of Public Health and Environment initiated the COPAN program. The COPAN program uses a comprehensive, community-based approach to promote healthy eating and physical activity as a means of preventing and reducing overweight, obesity and related chronic diseases in Colorado.

In the fall of 2006, COPAN contracted an independent consulting firm, Conservation Impact, to survey statewide efforts in obesity reduction and prevention and provide guidance toward the potential of developing a statewide obesity prevention system. The project sought to provide strategic direction for closing gaps, leveraging opportunities, and enhancing effectiveness towards Department of Health and Human Services’ Healthy People 2010 goals.

Key Findings Included:

- **Strategic focus areas** and community sectors that COPAN identifies as necessary for a community to successfully address obesity include breastfeeding, childcare, schools, worksites, older adults, healthy food options, healthcare, and active community environments. **COPAN also follows a socio-ecological model** that looks at a variety of intervention levels, comprising individual, interpersonal, organizational, community, and public policy environments.

- An effective statewide system to address obesity requires focused leadership at the highest levels, providing vision, setting direction, and holding the statewide system and individual organizations and agencies accountable for success. **Leadership should begin with the governor and legislature** and include the CEO’s and executive directors of major foundations, corporations, NGO’s, and public agencies.

- To broadly influence individual and cultural change, **statewide strategies must be founded on innovative and effective policies** and supported by social marketing to raise awareness and influence behavior. The necessary systems and structures must be in place to support behavioral changes, especially in the healthcare and educational systems. Intervention strategies must be focused and initiated at the state level, but also community-based and reaching disparate populations.

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72 Colorado Physical Activity and Nutrition Program (COPAN) Obesity System Scan, Project Report October 17, 2006
- Effective support for interventions requires adequate, **coordinated funding that encourages true collaboration** across traditional programs, agencies, and organizations. This new approach to funding would reduce redundancies and encourage integration of interventions and messages so that obesity is addressed through programs and services that traditionally target related chronic diseases, encourage physical activity, and promote healthy nutrition. Coordinated funding will also encourage longer-term studies with rigorous evaluation components.

- Data on outcomes are critical to the development of effective strategies for obesity prevention and reduction. **Documenting effective and ineffective interventions** is needed to guide on-going work, inform decision-makers, and encourage investment in effective strategies. Without reliable data, adaptive management and investment at all levels of a statewide system, from policy and messaging to intervention and research are based on best guesses alone.

- Accomplishing any of this will first require **agreement on desired outcomes** and strategies. Without common vision, unified goals, and definitions, there will be nothing to coordinate around. System development and alignment should fulfill specific functions, with relevant players invited to the table for deliberate purposes. Participants must decisively clarify approaches and strategies prior to developing structures for implementation (form follows function).

- The highest levels of leadership attention are required for a statewide system to be effective. Neither COPAN nor Prevention Services Division of CDPHE are at a high enough level to spearhead creation a system across government departments, philanthropies, for-profit and non-profit entities, media outlets, and so on. This **top-level leadership will preferably come from the governor’s office and/or the state legislature**. COPAN, for PSD and CDPHE, can then provide the coordination and convening functions that will be necessary to maintain an effective statewide obesity prevention effort.
COPAN ROADMAP TO HEALTHY EATING AND ACTIVE LIVING

COPAN promotes preventive strategies through healthy eating and active living as detailed in the Roadmap to Healthy Eating and Active Living. The roadmap recognizes the contribution community life plays in promoting physical activity and nutrition. It focuses on 11 key community targets.

The Colorado Department of Public Health and Environment and its partners are supporting proven and promising strategies such as:

- Providing businesses with tools for creating incentives and welcoming environments for employees to be healthy and physically active
- Promoting best practices for schools to provide daily physical activity for students, adopt nutrition guidelines and partner with local farmers to serve fresh produce in school meals
- Encouraging health care professionals to adopt Colorado Adult and Childhood Obesity Guidelines to provide healthy lifestyle advice to their patients
- Assisting restaurant patrons in selecting healthy menu items with the Smart Meal seal
• Partnering with communities to **design streets and neighborhoods to include bike paths and sidewalks** and convenient linkages to parks, schools, grocery stores and community gathering places
• Supporting communities in developing **community gardens**, sponsoring affordable healthy-cooking and exercise classes, and offering team sports opportunities for people of all ages

**COPAN COMMUNITY PARTNERSHIPS**

Public-private partnerships are important for effective obesity prevention. The COPAN program at the state health department has a number of partners, each with a well-defined purpose. A sample of these partners includes the Colorado Health Foundation, Kaiser Permanente, the Colorado Department of Education and the Colorado Department of Transportation. **In 2008, the Colorado Health Foundation, Kaiser Permanente, COPAN, and a number of other partners came together to create a new nonprofit organization: LiveWell Colorado.** LiveWell Colorado was created to spearhead state and local partnerships to address obesity prevention by coordinating efforts, reducing duplication, streamlining program funding and promoting collaborations among stakeholders throughout Colorado. LiveWell Colorado’s mission is: “to inspire and advance policy, environmental and lifestyle changes that promote health through the prevention and reduction of obesity.” LiveWell Colorado is a strategic partner of COPAN. Currently in 2009, **LiveWell Colorado supports 25 communities** and COPAN provides additional content expertise to these communities.73

**CENTERS FOR DISEASE CONTROL (CDC) RECOMMENDATIONS**74

COPAN obesity interventions are based on known best practices and follow the Centers for Disease Control and Prevention’s recommended strategies and measurements to prevent obesity in the United States.

**CDC STRATEGIES TO PROMOTE THE AVAILABILITY OF AFFORDABLE HEALTH FOOD AND BEVERAGE**

1. Communities Should Increase Availability of Healthier Food and Beverage Choices in Public Service Venues
2. Communities Should Improve Availability of Affordable Healthier Food and Beverage Choices in Public Service Venues
3. Communities Should Improve Geographic Availability of Supermarkets in Underserved Areas

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74 [http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5807a1.htm](http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5807a1.htm)
4. Communities Should Provide Incentives to Food Retailers to Locate in and/or Offer Healthier Food and Beverage Choices in Underserved Areas
5. Communities Should Improve Availability of Mechanisms for Purchasing Foods from Farms
6. Communities Should Provide Incentives for the Production, Distribution, and Procurement of Foods from Local Farms
7. Communities Should Restrict Availability of Less Healthy Foods and Beverages in Public Service Venues
8. Communities Should Institute Smaller Portion Size Options in Public Service Venues
9. Communities Should Limit Advertisements of Less Healthy Foods and Beverages
10. Communities Should Discourage Consumption of Sugar-Sweetened Beverages

**STRATEGY TO ENCOURAGE BREASTFEEDING**

11. Communities Should Increase Support for Breastfeeding

**STRATEGIES TO ENCOURAGE PHYSICAL ACTIVITY OR LIMIT SEDENTARY ACTIVITY AMONG CHILDREN AND YOUTH**

12. Communities Should Require Physical Education in Schools
13. Communities Should Increase the Amount of Physical Activity in PE Programs in Schools
14. Communities Should Increase Opportunities for Extracurricular Physical Activity
15. Communities Should Reduce Screen Time in Public Service Venues

**STRATEGIES TO CREATE SAFE COMMUNITIES THAT SUPPORT PHYSICAL ACTIVITY**

16. Communities Should Improve Access to Outdoor Recreational Facilities
17. Communities Should Enhance Infrastructure Supporting Bicycling
18. Communities Should Enhance Infrastructure Supporting Walking
19. Communities Should Support Locating Schools within Easy Walking Distance of Residential Areas
20. Communities Should Improve Access to Public Transportation
21. Communities Should Zone for Mixed-Use Development
22. Communities Should Enhance Personal Safety in Areas Where Persons Are or Could Be Physically Active
23. Communities Should Enhance Traffic Safety in Areas Where Persons Are or Could Be Physically Active

**STRATEGY TO ENCOURAGE COMMUNITIES TO ORGANIZE FOR CHANGE**

24. Communities Should Participate in Community Coalitions or Partnerships to Address Obesity
REPORT BRIEF • SEPTEMBER 2009

LOCAL GOVERNMENT ACTIONS TO PREVENT CHILDHOOD OBESITY

In the United States, 16.2 percent of children and adolescents between the ages of two and 19 are obese. This epidemic has exploded over just three decades. Among children two to five years old, obesity prevalence increased from 5 percent to 12.4 percent; among children six to 11, it increased from 6.5 percent to 17 percent; and among adolescents 12 to 19 years old, it increased from 5 percent to 17.6 percent (see Figure 1).

The prevalence of obesity is so high that it may reduce the life expectancy of today’s generation of children and diminish the overall quality of their lives. Obese children and adolescents are more likely than their lower-weight counterparts to develop hypertension, high cholesterol, and type 2 diabetes when they are young, and they are more likely to be obese as adults.

In 2008, the Institute of Medicine (IOM) Committee on Childhood Obesity Prevention Actions for Local Governments was convened to identify promising ways to address this problem on what may well be the epidemic’s frontlines. The good news is that there are numerous actions that show potential for use by local governments. Of course, parents and other adult caregivers play a fundamental role in teaching children about healthy behaviors, in modeling those behaviors, and in making decisions for children when needed. But those positive efforts can be undermined by local environments that are poorly suited to supporting healthy behaviors—and may even promote unhealthy behaviors. For example, many communities lack ready sources of healthy food choices, such as supermarkets and grocery stores. Or they may not provide safe places for children to walk or play. In such communities, even the most motivated child or adolescent may find it difficult to act in healthy ways.

FIGURE 1: PREVALENCE OF OBESITY AMONG CHILDREN, 1971-2006

SOURCE: Centers for Disease Control and Prevention, National Health and Nutrition Examination Survey

For more information visit www.iom.edu/obesity/localgov.
ACTING LOCALLY

Local governments are experienced in promoting children’s health, as they historically have implemented policies intended to ensure, among other things, that children are immunized or they wear helmets when riding a bike. In the same way, local governments—with jurisdiction over many aspects of land use, food marketing, community planning, transportation, health and nutrition programs, and other community issues—are ideally positioned to promote behaviors that will help children and adolescents reach and maintain healthy weights. Promoting children’s healthy eating and activity will require the involvement of an array of government officials, including mayors and commissioners or other leaders of counties, cities, or townships. Many departments, including those responsible for public health, public works, transportation, parks and recreation, public safety, planning, economic development, and housing will also need to be involved.

In addition, community involvement and evaluation are vital to childhood obesity prevention efforts. It is critical for local government officials and staff to involve constituents in determining local needs and identifying top priorities. Engaging community members in the process will help identify local assets, focus resources, and improve implementation plans. And, as obesity prevention actions are implemented, they need to be evaluated in order to provide important information on what does and does not work.

CREATING EQUAL OPPORTUNITIES FOR HEALTHY WEIGHT

In adopting policies and practices tailored to raising healthy children, local communities have an added opportunity to achieve health equity—put simply, the fair distribution of health resources among all population groups, regardless of their social standing. Poverty, poor housing, racial segregation, lack of access to quality education, and limited access to health care contribute to the uneven well-being of some groups of people, especially those living in historically disadvantaged communities. If local officials observe, for example, that many children in certain neighborhoods do not engage in sufficient physical activity or consume too few fruits and vegetables, they should examine the equity of access to recreation opportunities and grocery stores in those areas. These officials may then find themselves uniquely positioned to catalyze, support, or lead collaborations in the community and engage diverse constituent groups in efforts to improve the places where children live and play.

RECOMMENDING PROMISING ACTIONS

Evidence on the best childhood obesity prevention practices is still accumulating and is limited in many important topic areas. However, local government officials want to act now on the best available information. The IOM committee reviewed published literature, examined reports from organizations that work with local governments, heard presentations from experts on the role of local government in obesity prevention, and explored a variety of tool kits that have been developed for communities and their leaders.

In arriving at its recommendations, the committee looked for actions that are within the jurisdiction of local governments; likely to directly affect children; based on the experience of local governments or sources that work with local governments; take place outside of the school day; and have the potential to promote healthy eating and adequate physical activity. Healthy eating is characterized as consuming the types and amounts of foods, nutrients, and calories recommended by the Dietary Guidelines for Americans, and adequate physical activity for children constitutes a total of 60 minutes per day.

The committee recommends nine healthy eating strategies and six physical activity strategies for local government officials to consider in planning, implementing, and refining childhood obesity prevention efforts. The committee also recommends a number of specific action steps for each strategy and highlights 12 steps overall judged to have the most promise.


**ACTIONS FOR HEALTHY EATING**

**GOAL 1: IMPROVE ACCESS TO AND CONSUMPTION OF HEALTHY, SAFE, AND AFFORDABLE FOODS**

**Strategy 1: Retail Outlets**

Increase community access to healthy foods through supermarkets, grocery stores, and convenience/corner stores.

*Action Steps*

- Create incentive programs to attract supermarkets and grocery stores to underserved neighborhoods (e.g., tax credits, grant and loan programs, small business/economic development programs, and other economic incentives).
- Realign bus routes or provide other transportation, such as mobile community vans or shuttles to ensure that residents can access supermarkets or grocery stores easily and affordably through public transportation.
- Create incentive programs to enable current small food store owners in underserved areas to carry healthier, affordable food items (e.g., grants or loans to purchase refrigeration equipment to store fruits, vegetables, and fat-free/low-fat dairy; free publicity; a city awards program; or linkages to wholesalers distributors).
- Use zoning regulations to enable healthy food providers to locate in underserved neighborhoods (e.g., “as of right” and “conditional use permits”).
- Enhance accessibility to grocery stores through public safety efforts, such as better outdoor lighting and police patrolling.

**Strategy 2: Restaurants**

Improve the availability and identification of healthful foods in restaurants.

*Action Steps*

- Require menu labeling in chain restaurants to provide consumers with calorie information on in-store menus and menu boards.
- Encourage non-chain restaurants to provide consumers with calorie information on in-store menus and menu boards.
- Offer incentives (e.g., recognition or endorsement) for restaurants that promote healthier options (for example, by increasing the offerings of healthier foods, serving age-appropriate portion sizes, or making the default standard options healthy—i.e., apples or carrots instead of French fries, and non-fat milk instead of soda in “kids’ meals”).

**Strategy 3: Community Food Access**

Promote efforts to provide fruits and vegetables in a variety of settings, such as farmers’ markets, farm stands, mobile markets, community gardens, and youth-focused gardens.

*Action Steps*

- Encourage farmers markets to accept Special Supplemental Nutrition Program for Women, Infants and Children (WIC) food package vouchers and WIC Farmers Market Nutrition Program coupons; and encourage and make it possible for farmers markets to accept Supplemental Nutrition Assistance Program (or SNAP, formerly the Food Stamp Program) and WIC Program Electronic Benefit Transfer (EBT) cards by allocating funding for equipment that uses electronic methods of payment.
- Improve funding for outreach, education, and transportation to encourage use of farmers markets and farm stands by residents of lower-income neighborhoods, and by WIC and SNAP recipients.

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= Most Promising Steps
• Introduce or modify land use policies/zoning regulations to promote, expand, and protect potential sites for community gardens and farmers’ markets, such as vacant city-owned land or unused parking lots.

• Develop community-based group activities (e.g., community kitchens) that link procurement of affordable, healthy food with improving skills in purchasing and preparing food.

Strategy 4: Public Programs and Worksites
Ensure that publicly-run entities such as after-school programs, child-care facilities, recreation centers, and local government worksites implement policies and practices to promote healthy foods and beverages and reduce or eliminate the availability of calorie-dense, nutrient-poor foods.

Action Steps
• Mandate and implement strong nutrition standards for foods and beverages available in government-run or regulated after-school programs, recreation centers, parks, and child care facilities (which includes limiting access to calorie-dense, nutrient-poor foods).

• Ensure that local government agencies that operate cafeterias and vending options have strong nutrition standards in place wherever foods and beverages are sold or available.

• Provide incentives or subsidies to government-run or regulated programs and localities that provide healthy foods at competitive prices and limit calorie-dense, nutrient-poor foods (e.g., after-school programs that provide fruits or vegetables every day, and eliminate calorie-dense, nutrient-poor foods in vending machines or as part of the program).

Strategy 5: Government Nutrition Programs
Increase participation in federal, state, and local government nutrition assistance programs (e.g., WIC, school breakfast and lunch, the Child and Adult Care Food Program [CACFP], the After-school Snacks Program, the Summer Food Service Program, SNAP).

Action Steps
• Put policies in place that require government-run and -regulated agencies responsible for administering nutrition assistance programs to collaborate across agencies and programs to increase enrollment and participation in these programs (i.e., WIC agencies should ensure that those who are eligible are also participating in SNAP, etc.)

• Ensure that child care and after-school program licensing agencies encourage utilization of the nutrition assistance programs and increase nutrition program enrollment (CACFP, After-school Snacks Program, and the Summer Food Service Program).

Strategy 6: Breastfeeding
Encourage breastfeeding and promote breastfeeding-friendly communities.

Action Steps
• Adopt practices in city and county hospitals that are consistent with the Baby-Friendly Hospital Initiative USA (United Nations Children’s Fund/World Health Organization). This initiative promotes, protects, and supports breastfeeding through ten steps to successful breastfeeding for hospitals.

• Permit breastfeeding in public places and rescind any laws or regulations that discourage or do not allow breastfeeding in public places and encourage the creation of lactation rooms in public places.

• Develop incentive programs to encourage government agencies to ensure breastfeeding-friendly worksites, including providing lactation rooms.

• Allocate funding to WIC clinics to acquire breast pumps to loan to participants.
Strategy 7: Drinking Water Access

Increase access to free, safe drinking water in public places to encourage water consumption instead of sugar-sweetened beverages.

Action Steps
- Require that plain water be available in local government-operated and administered outdoor areas and other public places and facilities.
- Adopt building codes to require access to and maintenance of fresh drinking water fountains (e.g., public restroom codes).

GOAL 2: REDUCE ACCESS TO AND CONSUMPTION OF CALORIE-DENSE, NUTRIENT-POOR FOODS

Strategy 8: Policies and Ordinances

Implement fiscal policies and local ordinances to discourage the consumption of calorie-dense, nutrient-poor foods and beverages (e.g., taxes, incentives, land use and zoning regulations).

Action Steps
- Implement a tax strategy to discourage consumption of foods and beverages that have minimal nutritional value, such as sugar-sweetened beverages.
- Adopt land use and zoning policies that restrict fast food establishments near school grounds and public playgrounds.
- Implement local ordinances to restrict mobile vending of calorie-dense, nutrient-poor foods near schools and public playgrounds.
- Implement zoning designed to limit the density of fast food establishments in residential communities.
- Eliminate advertising and marketing of calorie-dense, nutrient-poor foods and beverages near school grounds and public places frequently visited by youths.
- Create incentive and recognition programs to encourage grocery stores and convenience stores to reduce point-of-sale marketing of calorie-dense, nutrient-poor foods (i.e., promote “candy-free” check out aisles and spaces).

GOAL 3: RAISE AWARENESS ABOUT THE IMPORTANCE OF HEALTHY EATING TO PREVENT CHILDHOOD OBESITY

Strategy 9: Media and Social Marketing

Promote media and social marketing campaigns on healthy eating and childhoo obesity prevention.

Action Steps
- Develop media campaigns, utilizing multiple channels (print, radio, internet, television, social networking, and other promotional materials) to promote healthy eating (and active living) using consistent messages.
- Design a media campaign that establishes community access to healthy foods as a health equity issue and reframes obesity as a consequence of environmental inequities and not just the result of poor personal choices.
- Develop counter-advertising media approaches against unhealthy products to reach youth as has been used in the tobacco and alcohol prevention fields.
 ACTIONS FOR INCREASING PHYSICAL ACTIVITY

GOAL 1: ENCOURAGE PHYSICAL ACTIVITY

Strategy 1: Built Environment
Encourage walking and bicycling for transportation and recreation through improvements in the built environment.

Action Steps
• Adopt a pedestrian and bicycle master plan to develop a long-term vision for walking and bicycling in the community and guide implementation.
• Plan, build, and maintain a network of sidewalks and street crossings that creates a safe and comfortable walking environment and that connects to schools, parks, and other destinations.
• Plan, build, and retrofit streets so as to reduce vehicle speeds, accommodate bicyclists, and improve the walking environment.
• Plan, build, and maintain a well-connected network of off-street trails and paths for pedestrians and bicyclists.
• Increase destinations within walking and bicycling distance.
• Collaborate with school districts and developers to build new schools in locations central to residential areas and away from heavily trafficked roads.

Strategy 2: Programs for Walking and Biking
Promote programs that support walking and bicycling for transportation and recreation.

Action Steps
• Adopt community policing strategies that improve safety and security of streets, especially in higher crime neighborhoods. *
• Collaborate with schools to develop and implement a Safe Routes to School program to increase the number of children safely walking and bicycling to schools.
• Improve access to bicycles, helmets, and related equipment for lower-income families, for example, through subsidies or repair programs.
• Promote increased transit use through reduced fares for children, families, and students, and improved service to schools, parks, recreation centers, and other family destinations.
• Implement a traffic enforcement program to improve safety for pedestrians and bicyclists.

Strategy 3: Recreational Physical Activity
Promote other forms of recreational physical activity.

Action Steps
• Build and maintain parks and playgrounds that are safe and attractive for playing and in close proximity to residential areas.
• Adopt community policing strategies that improve safety and security for park use, especially in higher crime neighborhoods. *
• Improve access to public and private recreational facilities in communities with limited recreational options through reduced costs, increased operating hours, and development of culturally appropriate activities.

* These two action steps on community policing were combined for the most promising 12 action steps list.
• Create after-school activity programs, e.g., dance classes, city-sponsored sports, supervised play, and other publicly or privately supported active recreation.

• Collaborate with school districts and other organizations to establish joint use of facilities agreements allowing playing fields, playgrounds, and recreation centers to be used by community residents when schools are closed; if necessary, adopt regulatory and legislative policies to address liability issues that might block implementation.

• Create and promote youth athletic leagues and increase access to fields, with special emphasis on income and gender equity.

• Build and provide incentives to build recreation centers in neighborhoods.

**Strategy 4: Routine Physical Activity**

Promote policies that build physical activity into daily routines.

**Action Steps**

• Institute regulatory policies mandating minimum play space, physical equipment, and duration of play in preschool, after-school, and child-care programs.

• Develop worksite policies and practices that build physical activity into routines (for example, exercise breaks at a certain time of day and in meetings, or walking meetings). Target worksites with high percentages of youth employees and government-run and -regulated worksites.

• Create incentives for remote parking and drop-off zones and/or disincentives for nearby parking and drop-off zones at schools, public facilities, shopping malls, and other destinations.

• Improve stairway access and appeal, especially in places frequented by children.

**GOAL 2: DECREASE SEDENTARY BEHAVIOR**

**Strategy 5: Screen Time**

Promote policies that reduce sedentary screen time.

**Action Steps**

• Adopt regulatory policies limiting screen time in preschool and after-school programs.

**GOAL 3: RAISE AWARENESS OF THE IMPORTANCE OF INCREASING PHYSICAL ACTIVITY**

**Strategy 6: Media and Social Marketing**

Develop a social marketing program that emphasizes the multiple benefits for children and families of sustained physical activity.

**Action Steps**

• Develop media campaigns, utilizing multiple channels (print, radio, internet, television, other promotional materials) to promote physical activity using consistent messages.

• Design a media campaign that establishes physical activity as a health equity issue and reframes obesity as a consequence of environmental inequities and not just the result of poor personal choices.

• Develop counter-advertising media approaches against sedentary activity to reach youth as has been done in the tobacco and alcohol prevention fields.
FOR MORE INFORMATION . . .

Copies of Local Government Actions to Prevent Childhood Obesity are available from the National Academies Press, 500 Fifth Street, N.W., Lockbox 285, Washington, DC 20036; (800) 624-6242 or (202) 334-3313 (in the Washington metropolitan area); Internet, www.nap.edu. The full text of this report is available at www.nap.edu.

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COMMITTEE ON CHILDHOOD OBESITY PREVENTION ACTIONS FOR LOCAL GOVERNMENTS

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Collaborative work with many partners has led to several important successes in the promotion and implementation of policy and environmental change strategies to reduce obesity. The state-level policies include the following:

- **Senate Bill 103 (2004)** supported school-based policies to decrease the consumption of low-nutrition, high-sugar containing foods. Senate Bill 103 encouraged each school district board of education to adopt a policy on or before July 1, 2004, that would ensure that, by the 2006-07 school year, at least 50 percent of all items offered in vending machines in the school district be healthful foods or healthful beverages that meet acceptable nutritional standards.

- **Senate Bill 88 (2004)** supports and promotes breast-feeding and supports breast-feeding mothers. This legislation recognizes the benefits of breast-feeding, encourages mothers to breast-feed and allows a mother to breast-feed in any place she has a right to be.

- **Amendment 35 (passed by voters in November 2004)** substantially increased the state’s tobacco excise tax and designated revenues for several health initiatives. Since January 2005, the Prevention Services Division at the Colorado Department of Public Health and Environment has used these funds to prevent and reduce tobacco use; prevent, detect and treat cancer, cardiovascular disease and pulmonary disease; expand breast and cervical cancer screening services; and reduce health disparities.

- **Senate Bill 81 (2005)** addresses the combined work of the Early Childhood and School Site Task Forces to support healthful eating and physical activity in schools with the encouragement to adopt coordinated school health policy standards. The bill recognizes overweight among children and youth as a major public health threat and encourages school district boards of education to adopt policies to improve children’s nutrition by offering healthful foods at school, providing culturally sensitive nutrition education, establishing local school wellness policies in accordance with the federal Child Nutrition and WIC Reauthorization Act of 2004, ensuring student access to fresh produce (especially Colorado-grown) and ensuring student access to daily physical activity. The bill also encourages the inclusion of goals for nutrition education in local wellness policies.

- **House Bill 309 (2005)** created a Safe Routes to School program in the Department of Transportation to distribute federal funds to local governments to create and promote active communities and lifestyles. This is directly related to the work of the COPAN Active Community Environments Task Force.

- **Senate Bill 127 (2006)** created a program to make free fruits and vegetables available to students in public schools and requires that Colorado-grown produce be used in the program to the maximum extent possible.

- **House Bill 1093 (2007)** is specific to the work of the original 5-A-Day Task Force, in that it encourages the purchase of Colorado-grown produce by government entities.

- **Senate Bill 129 (2008)** requires that all beverages sold to public school students must meet minimum nutritional standards. Beverages sold in elementary and middle schools can be only water, milk or 100 percent juice. Beverages sold in high schools must include the previous standards, but high schools can sell sports drinks. Soft drinks are not allowed for sale in elementary, middle or high schools.

- **House Bill 1276 (2008)** also is known as “Workplace Accommodation for Nursing Mothers.” This bill establishes a standard for employers to make a reasonable effort to provide breast-feeding mothers with unpaid break time, paid break time and/or meal time to express breast milk for their nursing children for up to two years after the child’s birth; to provide a private location in close proximity to the breast-feeding mother’s work area (other than a toilet stall) in which to express milk; and not discriminate against women for expressing milk in the workplace.

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<table>
<thead>
<tr>
<th>County or Statewide Program</th>
<th>Provider</th>
<th>Contact Person</th>
<th>Phone / Email</th>
<th>Website</th>
<th>Address</th>
<th>Programs</th>
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<tbody>
<tr>
<td>Statewide</td>
<td>Colorado Physical Activity and Nutrition Program</td>
<td>Eric Aakko</td>
<td>(303) 692-2441, <a href="mailto:eric.aakko@state.co.us">eric.aakko@state.co.us</a></td>
<td><a href="http://www.cdphe.state.co.us/pp/COPAN/COPAN.html">http://www.cdphe.state.co.us/pp/COPAN/COPAN.html</a></td>
<td>4300 Cherry Creek Drive South (PSD-A5) Denver, CO 80246-1530</td>
<td>The Program has established and coordinates the COPAN Coalition including an executive committee. Together the Program and the Coalition have developed and are implementing the Colorado Physical Activity and Nutrition State Plan 2010 that promotes healthy eating and physical activity in order to successfully prevent and reduce overweight, obesity, and related chronic diseases.</td>
</tr>
<tr>
<td>Statewide</td>
<td>Center for Obesity Research and Prevention</td>
<td>Andra Price</td>
<td>(303) 556-2400, <a href="mailto:andra.price@ucdenver.edu">andra.price@ucdenver.edu</a></td>
<td><a href="http://www.ucdenver.edu/academics/colleges/medicalschool/centers/HumanNutrition/NORC/Pages/ColoradoNORC.aspx">http://www.ucdenver.edu/academics/colleges/medicalschool/centers/HumanNutrition/NORC/Pages/ColoradoNORC.aspx</a></td>
<td>The Anschutz Medical Campus 13001 E 17th Place Aurora, Colorado</td>
<td>Provide education about management of weight/obesity issues, informational/educational resources, community outreach and advocacy to foster health improvement, clinic trials, programs and services</td>
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<tr>
<td>Statewide</td>
<td>Children's Hospital of Colorado Weight Loss Program</td>
<td>*</td>
<td>(720) 777-3552</td>
<td><a href="http://www.childrenscolorado.org/conditions/nutrition/index.aspx">http://www.childrenscolorado.org/conditions/nutrition/index.aspx</a></td>
<td>13123 East 16th Ave Aurora, CO 80045</td>
<td>Children’s Hospital Colorado offers the region’s largest pediatric weight management program.</td>
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<tr>
<td>Statewide</td>
<td>9 Health Fair</td>
<td>Becky Aragon</td>
<td>(303) 698-4455</td>
<td><a href="http://www.9healthfair.org/default.aspx">http://www.9healthfair.org/default.aspx</a></td>
<td>1139 Delaware Street Denver, CO 80204</td>
<td>Statewide Health Fairs that encourage the public to partake in weight loss programs and develop healthy eating habits</td>
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<td>County or Statewide Program</td>
<td>Provider</td>
<td>Contact Person</td>
<td>Phone / Email</td>
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<tr>
<td>Statewide</td>
<td>Volunteers of America: Nutrition Program</td>
<td>Dianna L. Kunz</td>
<td>(303)297-0408 <a href="mailto:info@voacolorado.org">info@voacolorado.org</a></td>
<td><a href="http://www.voacolorado.org/">http://www.voacolorado.org/</a></td>
<td>2660 Larimer St. Denver, CO 80205</td>
<td>Provides nutrition education, services and assistance for Colorado population +60</td>
</tr>
<tr>
<td>Statewide</td>
<td>DOE: Nutrition Unit</td>
<td>Jane Brand</td>
<td>(303) 866-6661 <a href="mailto:brand_j@cde.state.co.us">brand_j@cde.state.co.us</a></td>
<td><a href="http://www.cde.state.co.us/index_nutrition.htm">http://www.cde.state.co.us/index_nutrition.htm</a></td>
<td>1580 Logan St, #760 Denver, CO 80203</td>
<td>School based programs focusing on nutrition for public schools in Colorado</td>
</tr>
<tr>
<td>Statewide</td>
<td>Colorado Connections for Healthy Kids</td>
<td>Carol Muller</td>
<td><a href="mailto:cmuller@actionforhealthykids.org">cmuller@actionforhealthykids.org</a></td>
<td><a href="http://take.actionforhealthykids.org/site/Clubs?club_id=1104&amp;pg=main">http://take.actionforhealthykids.org/site/Clubs?club_id=1104&amp;pg=main</a></td>
<td>*</td>
<td>Statewide initiative in support of Coordinated School Health Programs. Through this coordination of programs, resources, messages and training school staff, students, families and community resources we will work together for healthy students, healthy living, and better learners</td>
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<tr>
<td>Statewide</td>
<td>CDPHE: WIC</td>
<td>Patricia Daniluk</td>
<td>(303) 692.2400 <a href="mailto:Patricia.Daniluk@state.co.us">Patricia.Daniluk@state.co.us</a></td>
<td><a href="http://www.cdphe.state.co.us/ps/wic/index.html">http://www.cdphe.state.co.us/ps/wic/index.html</a></td>
<td>4300 Cherry Creek Drive South Denver, CO 80246</td>
<td>Nutrition education including breast feeding support, screening and referral</td>
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<tr>
<td>Statewide</td>
<td>Elevate Your Health Colorado</td>
<td>*</td>
<td>*</td>
<td><a href="http://www.elevateyourhealthco.com/node/534">http://www.elevateyourhealthco.com/node/534</a></td>
<td>*</td>
<td>Kaiser Permanente Program that offers the public advice via the web on weight loss and maintaining and developing a healthy lifestyle</td>
</tr>
<tr>
<td>Statewide</td>
<td>Kaiser Permanente Weigh and Win</td>
<td>Katie Hamilton</td>
<td>(303) 694-8012 <a href="mailto:khamilton@weighandwin.com">khamilton@weighandwin.com</a></td>
<td><a href="http://weighandwin.com/">http://weighandwin.com/</a></td>
<td>*</td>
<td>Kaiser Permanente is offering weight loss participants cash to lose weight over a given period in a statewide campaign/program.</td>
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<tr>
<td>Statewide</td>
<td>CDPHE: 5 A Day Program</td>
<td>Shana Patterson</td>
<td>(303)692-2572 <a href="mailto:shana.patterson@state.co.us">shana.patterson@state.co.us</a> <a href="mailto:cdphe.psdrequests@state.co.us">cdphe.psdrequests@state.co.us</a></td>
<td><a href="http://www.cdphe.state.co.us/pp/copan/5-a-day/5ADAY.html">http://www.cdphe.state.co.us/pp/copan/5-a-day/5ADAY.html</a></td>
<td>4300 Cherry Creek Drive South Denver, CO 80246</td>
<td>5 A Day for is a nutrition education program that encourages the consumption of 5 to 9 servings of fruits and vegetables each day for better health.</td>
</tr>
<tr>
<td>Statewide</td>
<td>Colorado Weigh</td>
<td>Shannon Brown</td>
<td>(303)892-0128</td>
<td><a href="http://www.coloradoweigh.com/what.html">http://www.coloradoweigh.com/what.html</a></td>
<td>7476 E. 29th Avenue Town Center, PMB 113 Denver, Colorado, 80238</td>
<td>The Colorado Weigh program is an innovative, research-based weight loss program developed over the last four years by the renowned Center for Human Nutrition at the University of Colorado School of Medicine.</td>
</tr>
<tr>
<td>Statewide</td>
<td>Action For Healthy Kids Colorado</td>
<td>Carol Muller</td>
<td>(1-800) 416-5136 <a href="mailto:cmuller@actionforhealthykids.org">cmuller@actionforhealthykids.org</a></td>
<td><a href="http://take.actionforhealthykids.org/site/Clubs?club_id=1104&amp;pg=main">http://take.actionforhealthykids.org/site/Clubs?club_id=1104&amp;pg=main</a></td>
<td>13001 E. 17th Place Aurora, CO 80045</td>
<td>* Build awareness and encourage positive role modeling among administrators, teachers, food service workers, develop and implement policies that are consistent with dietary guidelines, provide age appropriate education to children and offer opportunities for youth to explore nutrition and physical activity topics</td>
</tr>
<tr>
<td>Statewide</td>
<td>UCDHSC: Center for Human Nutrition</td>
<td>*</td>
<td>(303) 724-9975 <a href="mailto:CHN@UCHSC.edu">CHN@UCHSC.edu</a></td>
<td><a href="http://www.ucdenver.edu/academics/colleges/medicalschool/centers/HumanNutrition/Pages/HumanNutrition.aspx">http://www.ucdenver.edu/academics/colleges/medicalschool/centers/HumanNutrition/Pages/HumanNutrition.aspx</a></td>
<td>Mailstop C263 13001 E. 17th Place Aurora, CO 80045</td>
<td>Research and education on human nutrition located on the Anschutz Medical Campus</td>
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<tr>
<td>Statewide</td>
<td>Colorado Foundation for Physical Fitness - Shape Up Colorado</td>
<td>Jeff Taylor</td>
<td><a href="mailto:jtaylor@jefftaylor.com">jtaylor@jefftaylor.com</a></td>
<td><a href="http://www.coloradofitness.org/?page_id=3">http://www.coloradofitness.org/?page_id=3</a></td>
<td>*</td>
<td>Community outreach program to encourage individuals to incorporate physical activity into everyday living to increase healthful lifestyles and habits</td>
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<tr>
<td>Statewide</td>
<td>DOT: Walk To School Colorado</td>
<td>Marissa Robinson</td>
<td>(303) 757-9088 <a href="mailto:srts@dot.state.co.us">srts@dot.state.co.us</a></td>
<td><a href="http://www.coloradodot.info/programs/bikeped/safe-routes/walk-to-school">http://www.coloradodot.info/programs/bikeped/safe-routes/walk-to-school</a></td>
<td>4201 E Arkansas Ave Denver, CO 80222</td>
<td>Community programs that encourage people to walk (use alternate modes of transportation) to incorporate physical activity into daily life, healthy living, weight loss</td>
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<tr>
<td>Statewide</td>
<td>Live Well Colorado</td>
<td>Maren C. Stewart</td>
<td>(720) 353-4120</td>
<td><a href="http://www.livewellcolorado.org">www.livewellcolorado.org</a></td>
<td>1490 Lafayette Street #404 Denver, CO 80218</td>
<td>LiveWell Colorado is a nonprofit organization committed to reducing obesity in Colorado by promoting healthy eating and active living. In addition to educating and inspiring people to make healthy choices.</td>
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<tr>
<td>Statewide</td>
<td>Colorado Child and Adult Care Food Program</td>
<td>*</td>
<td>(303) 692-2330 <a href="mailto:cdphepsrequests@state.co.us">cdphepsrequests@state.co.us</a></td>
<td><a href="http://www.cdphe.state.co.us/ps/cafcp/contact.html">http://www.cdphe.state.co.us/ps/cafcp/contact.html</a></td>
<td>4300 Cherry Creek Drive South Denver, CO 80246</td>
<td>provides reimbursement for nutritious meals and snacks served to eligible children in child care centers, family day care homes, as well as to eligible adults in adult care centers</td>
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<tr>
<td>Statewide</td>
<td>Colorado Nutrition Education Plan - Live Well Colorado</td>
<td>Jennifer Anderson</td>
<td>(970) 491-7334 <a href="mailto:anderson@cahs.colostate.edu">anderson@cahs.colostate.edu</a></td>
<td><a href="http://about.livewellcolorado.org/state-initiatives/colorado-nutrition-education-plan">http://about.livewellcolorado.org/state-initiatives/colorado-nutrition-education-plan</a></td>
<td>Colorado State University Fort Collins, CO 80523</td>
<td>Education in community about nutrition, healthy eating and physical activity</td>
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<td>Statewide</td>
<td>Colorado School Nutrition Association</td>
<td>Jen Johnson</td>
<td>(303) 993-8064 <a href="mailto:jen@colosna.com">jen@colosna.com</a></td>
<td><a href="http://www.colosna.com/">http://www.colosna.com/</a></td>
<td>2508 4th Ave. Greeley, CO 80631</td>
<td>Provides nutrition education, sets nutrition guidelines and evaluates school nutrition programs for state of Colorado</td>
</tr>
<tr>
<td>Statewide</td>
<td>SEA: Coordinated School Health Program</td>
<td>Jon Gallegos</td>
<td>(303) 692-2319 <a href="mailto:Jon.gallegos@state.co.us">Jon.gallegos@state.co.us</a></td>
<td><a href="http://www.cdphe.state.co.us/ps/cash/schoolagehealth/cshpprogram.html?col1=0,col2=0,col3=0,col4=0,col5=0,col6=0">http://www.cdphe.state.co.us/ps/cash/schoolagehealth/cshpprogram.html?col1=0,col2=0,col3=0,col4=0,col5=0,col6=0</a></td>
<td>4300 Cherry Creek Drive South Denver, CO 80246</td>
<td>Community programs in state schools that focus on education</td>
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<tr>
<td>Statewide</td>
<td>Eat Right Colorado</td>
<td>Athena Evans</td>
<td>(303) 757-2060 <a href="mailto:eatrightcolorado@gmail.com">eatrightcolorado@gmail.com</a></td>
<td><a href="http://www.eatrightcolorado.org/">http://www.eatrightcolorado.org/</a></td>
<td>1805 South Bellaire Street Suite 505 Denver, CO 80222</td>
<td>Individual nutritional assessment and counseling, education, resources and referral</td>
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<tr>
<td>Adams County</td>
<td>Salud Family Health Centers</td>
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<td>6255 North Quebec Parkway Commerce City, CO 80022</td>
<td>Dental Services for all groups. Salud provides a sliding fee scale to make health care affordable and serves all patients regardless of ability to pay. Salud accepts Medicaid, Medicare, CHP+ and private insurance.</td>
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<tr>
<td>Adams County</td>
<td>Salud Family Health Centers</td>
<td></td>
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<td></td>
<td>1860 Egbert Street Brighton, CO 80601</td>
<td>Dental Services for all groups. Salud provides a sliding fee scale to make health care affordable and serves all patients regardless of ability to pay. Salud accepts Medicaid, Medicare, CHP+ and private insurance.</td>
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<tr>
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<td>Adams</td>
<td>Kids In Need of Dentistry (KIND)</td>
<td>Anita Gomez Denver Clinics Office Manager</td>
<td>720-322-1561 <a href="mailto:info@kindsmiles.org">info@kindsmiles.org</a></td>
<td><a href="http://www.kindsmiles.org/kind/en/Home/">http://www.kindsmiles.org/kind/en/Home/</a></td>
<td>Tri-County Health Department 4201 East 72nd Ave. Commerce City, Colo. 80022</td>
<td>KIND provides children with comprehensive dental services including: Oral exams, Professional cleanings and dental sealants, Restorative treatments such as fillings Emergency care. Specialty services including orthodontics, pedodontics, endodontics and oral surgery offered on a case-by-case basis. MON/TUES/WED 8:00am-5:00pm</td>
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<tr>
<td>Denver, Adams, Arapahoe, Jefferson</td>
<td>Center for Obesity Research and Prevention</td>
<td>Andra Price</td>
<td>(303) 556-2400 <a href="mailto:andra.price@ucdenver.edu">andra.price@ucdenver.edu</a></td>
<td><a href="http://www.ucdenver.edu/academics/colleges/medicalschool/centers/HumanNutrition/NORC/Pages/ColoradoNORC.aspx">http://www.ucdenver.edu/academics/colleges/medicalschool/centers/HumanNutrition/NORC/Pages/ColoradoNORC.aspx</a></td>
<td>The Anschutz Medical Campus 13001 E 17th Place Aurora, CO</td>
<td>Provide education about management of weight/obesity issues, informational/educational resources, community outreach and advocacy to foster health improvement, clinic trials, programs and services</td>
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<td>Denver</td>
<td>Bridges Weight Loss Center at Exempla Health</td>
<td>Colleen Hatton</td>
<td>(303) 425-2262</td>
<td><a href="http://www.exempla.org/body.cfm?id=29">http://www.exempla.org/body.cfm?id=29</a></td>
<td>8300 W. 38th Avenue - Wheat Ridge, CO 80033</td>
<td>Weight loss program, education, classes, resources and referral</td>
</tr>
</tbody>
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