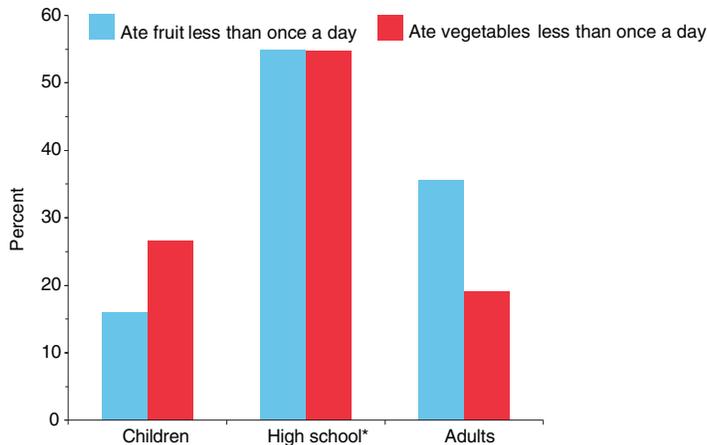


Fruit and Vegetable Consumption in Colorado

Facts for Action: Chronic Diseases and Related Risk Factors in Colorado

Many Coloradans do not eat fruits and vegetables every day.

Percent of children (ages 1-14), high school students (grades 9-12), and adults (ages 18+) who did not eat fruits and vegetables at least once a day, Colorado, 2013.



*High school data do not include fruit juice.

- 16% of children, 55% of high school students and 36% of adult Coloradans did not eat fruit at least once a day.
- Fruit juice substantially contributes to children's total fruit consumption. The percent of children who did not eat fruit at least once a day jumped from 16% to 24% when fruit juice was excluded from consideration.
- 29% of children, 55% of high school students and 19% of adult Coloradans did not eat vegetables at least once a day.

Obesity and healthy eating



In 2013, 21% of adult Coloradans were obese..



56% were overweight or obese.

- The doubling of the adult obesity prevalence in the United States in the past 18 years has multiple causes including genetic, behavioral (e.g., diet, physical activity), and environmental factors (e.g., food retail and transportation infrastructure).
- Obesity has been shown to increase the risk of numerous adverse health conditions including coronary heart disease, type 2 diabetes, high blood pressure, stroke, and various cancers.¹
- Obese children are more likely to become obese adults; If children are overweight, obesity in adulthood is likely to be more severe.²
- The estimated annual medical cost of obesity in the U.S. was \$147 billion in 2008 U.S. dollars; the medical costs for people who are obese were \$1,429 higher than those of normal weight.³
- While no single-factor strategy can solve this complex problem alone, promotion of healthy eating patterns, especially the regular consumption of fresh fruits and vegetables, can help to reduce obesity and alleviate associated health burdens.⁴

Overall, 86% of adult Coloradans did **not** meet recommendations for fruit and vegetable consumption in 2013. Depending upon the age of adults, 4-5 cups of fruits and vegetables is the recommended daily amount for men and 3.5-4.5 cups for women.⁵

>80%

More than 80% of adult Coloradans (ages 18+) who have been diagnosed with a chronic condition did **NOT** meet age/sex-specific recommendations for fruit and vegetable consumption in 2013.

Percentage **not** meeting recommendations relative to other adverse health outcomes:

90% of adults with diabetes

87% of adults with high blood cholesterol

90% of adults who had a heart attack, angina, coronary heart disease or stroke

86% of adults with a depressive disorder

89% of adults with high blood pressure

82% of adults who have or had cancer (excluding skin cancer)

Colorado data sources: Behavioral Risk Factor Surveillance System, Colorado Child Health Survey, Healthy Kids Colorado Survey

1. CDC. 2012. Adult Overweight and Obesity: Causes and Consequences. [ONLINE] Available at: <http://www.cdc.gov/obesity/adult/causes/index.html>. [Accessed 24 November 14].

2. CDC. 2012. Adult Overweight and Obesity: Basics About Childhood Obesity. [ONLINE] Available at: <http://www.cdc.gov/obesity/childhood/basics.html>. [Accessed 24 November 14].

3. Finkelstein EA, Trogon JG, Cohen JW, Dietz W. Annual Medical Spending Attributable to Obesity: Payer- and Service-Specific Estimates. Health Affairs 2009;5:w822-w831.

4. CDC. 2013 State Indicator Report on Fruits and Vegetables. [ONLINE] Available at: <http://www.cdc.gov/nutrition/downloads/State-Indicator-Report-Fruits-Vegetables-2013.pdf>. [Accessed 24 November 14].

5. USDA. MyPlate Food Groups [ONLINE] Available at: <http://www.choosemyplate.gov/food-groups/>. [Accessed 24 November 14].

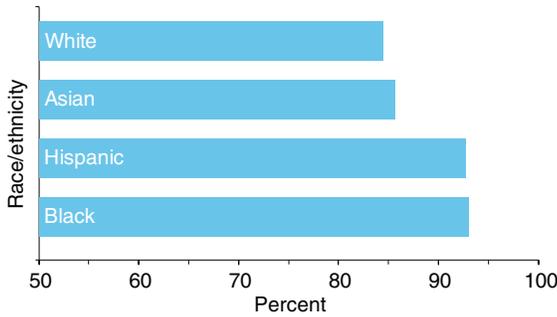




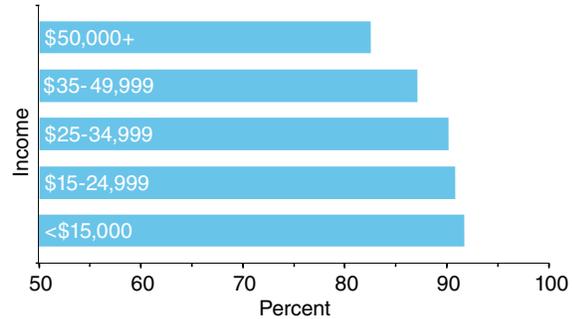
Disparities exist in the frequency of fruit and vegetable consumption.

Percent of adults (ages 18+) **not** meeting age- and sex-specific recommendations for fruit and vegetable consumption, Colorado, 2013.

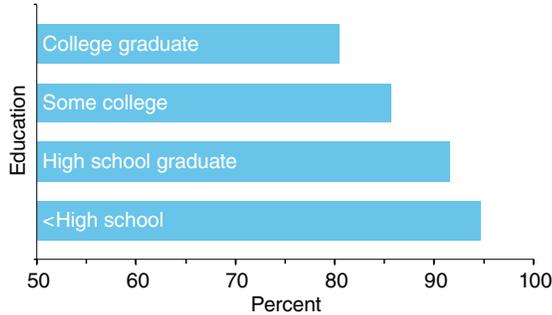
By race/ethnicity



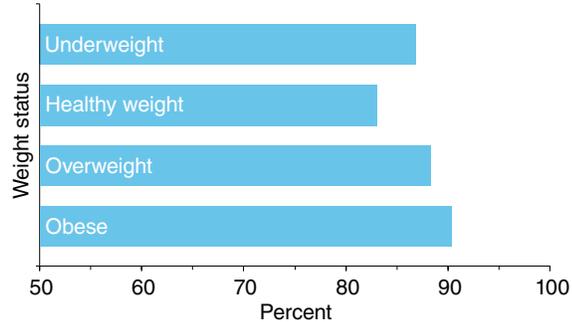
By household income



By education



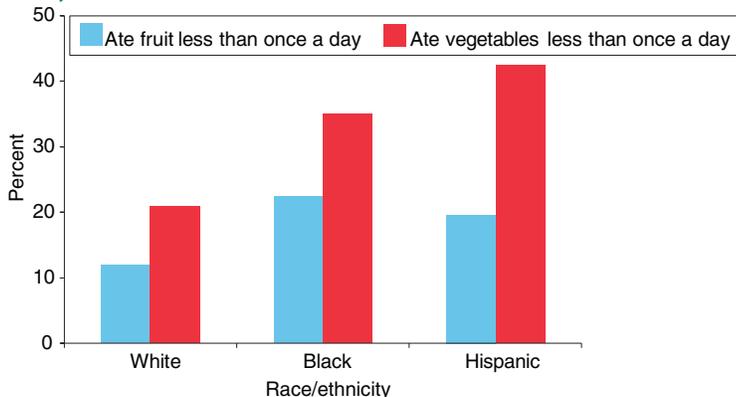
By weight status



86% of adult Coloradans did not meet recommendations for fruit and vegetable consumption.

- Women were significantly more likely to meet recommendations compared to men.
- Whites were significantly more likely to meet recommendations compared to Hispanics and Blacks.
- Adults with household incomes above \$50,000 were significantly more likely to meet recommendations than those earning <\$35,000.
- Adults with higher education levels were significantly more likely to meet recommendations.
- Adults with a healthy weight were significantly more likely to meet recommendations than overweight and obese adults.

Percent of children (ages 1-14) who did not eat fruits and vegetables at least once a day by race/ethnicity, Colorado, 2011-2013.



- Black and Hispanic children were 1.8 and 2.0 times more likely not to eat vegetables every day compared with White children, respectively.
- 35% of Black children and 43% of Hispanic children did not eat vegetables at least once a day.

Fruit and vegetable consumption by household income and body mass index.

- Children from households earning less than \$25,000 per year were 1.8 times more likely not to eat vegetables at least once a day compared with children from households earning \$50,000 or more per year.
- Consumption of fruits and vegetables did not differ based on children's body mass index.

Data sources: Behavioral Risk Factor Surveillance System, Colorado Child Health Survey.

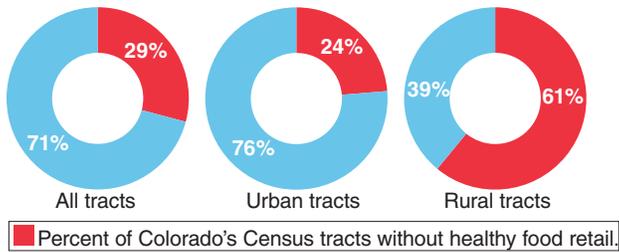
Terminology for racial/ethnic groups matches that used during data collection.



Access to healthy food in Colorado.

Increasing access to quality and affordable fruits and vegetables is an important step to increase fruit and vegetable consumption.¹

Percent of Colorado's census tracts without healthy food retail.



Definitions

- **Census Tracts** are small, relatively permanent statistical subdivisions that provide a stable set of geographic units for the presentation of Census data. They generally have a population size between 1,200 and 8,000 people.
- **Tracts with no healthy food retail** lack a supermarket, supercenter, large(r) grocery store, warehouse club, or fruit/vegetable specialty store in the tract or within 1/2 mile of the tract boundary.

- Nationally, **30%** of Census tracts do not have healthy food retail (state values vary from 17%-56% of tracts).²
- Within Colorado, **29%** of tracts (367 of 1,242) do not have access to healthy food retail.²
- The percentage of rural tracts (>50% of residents classified as rural by the 2010 U.S. Census) that do not have access to healthy food retail is **2.5 times higher** than in urban tracts (61% vs. 24%, respectively).

Increasing access

Policies and programs that promote or enhance access to fruits and vegetables in communities, schools and child care facilities represent an important step to increase fruit and vegetable consumption.¹

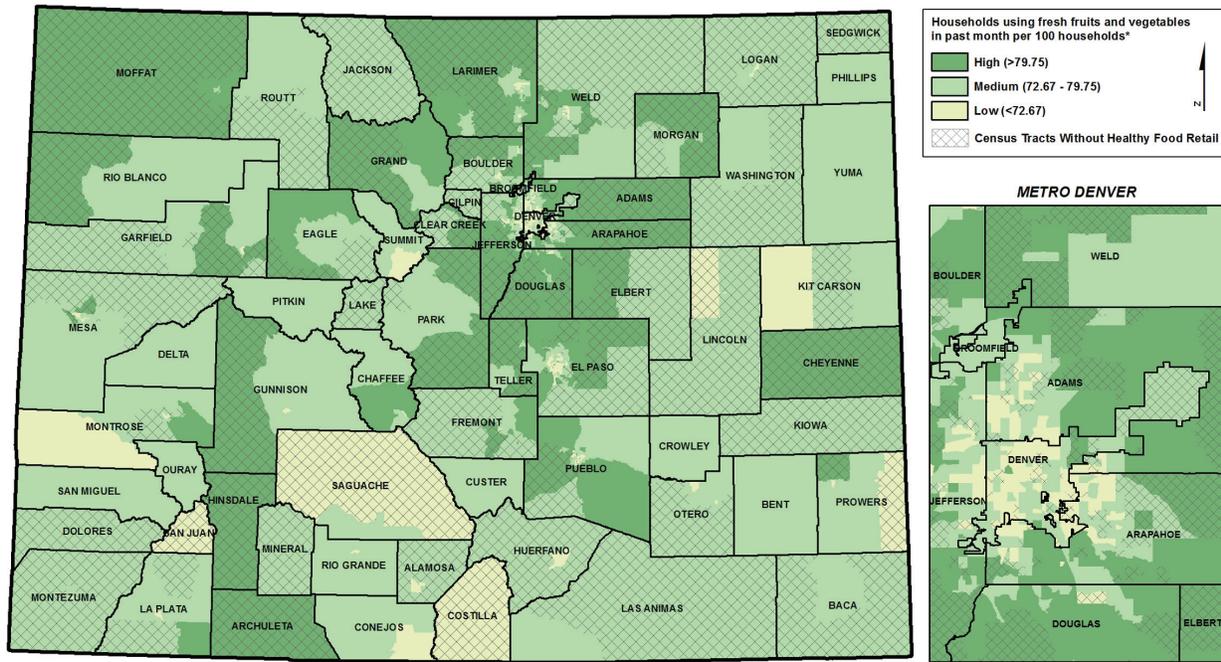
- **Affordability:** Roughly 1 in 8 Coloradans live below the poverty line and may be unable to regularly afford fruits and vegetables.³
- **Public assistance programs:** Programs within SNAP that support healthy food purchasing, such as the Healthy Incentives Pilot, can promote fruit and vegetable consumption. Overall, 7.3% of Colorado households participate in SNAP; the percentage varied from 0% to 21.2% among the state's 64 counties.^{3,4}
- **Distance to healthy food retail:** Nearly 1 in 3 Coloradans does not live near a healthy food retailer, and the greater travel time and/or distance to reach these retailers limits their ability to purchase and consume fruits and vegetables. On average, 30% of Coloradans must travel relatively long distances to reach the nearest grocery store (>1 mile in urban areas, >10 miles in rural areas).⁵
- **Vehicle access:** In some Colorado counties, over 12% of households do not have access to a vehicle that could be used for shopping, highlighting the importance of proximity to retail and public transportation.³
- **Farmers markets:** Farmer's markets can improve access to fruit and vegetable retail and support local agricultural production. There are 3.2 farmers markets per 100,000 residents in Colorado compared with 2.5 per 100,000 nationally.¹ Farmer's markets that accept SNAP benefits can further promote fruit and vegetable consumption. Currently, 21.7% of farmers markets in Colorado accept SNAP benefits, compared with 21.0% nationally.¹
- **School-based programs:** In Colorado, more than 560,000 students benefit from farm-to-school activities. Associated programs, including school gardens, encourage students to try new fruits and vegetables, thus promoting healthy eating habits through increased consumption of fruits and vegetables. A greater percentage of schools (6.1%) in Colorado always offer fruits or non-fried vegetables in vending machines, school stores, canteens or snack bars and during celebrations where food and beverages are offered compared to the national average (2.1%).⁶

Data sources:

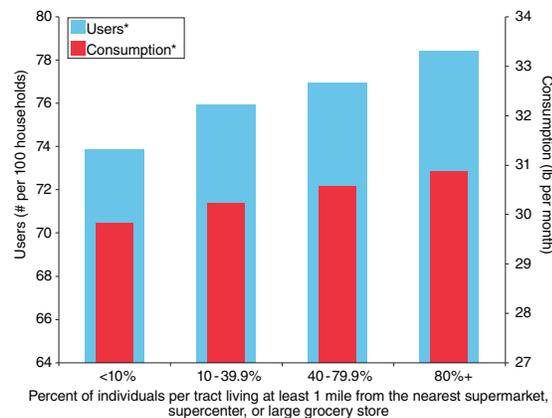
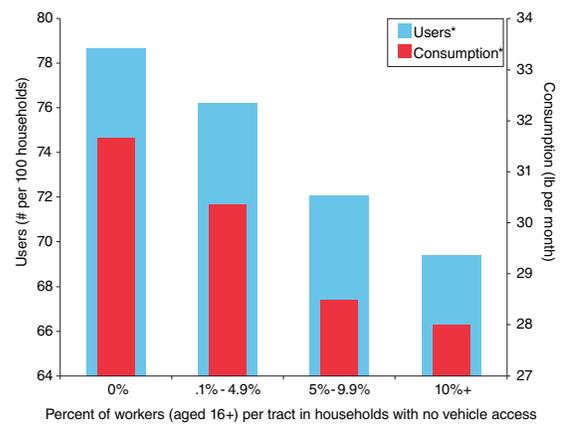
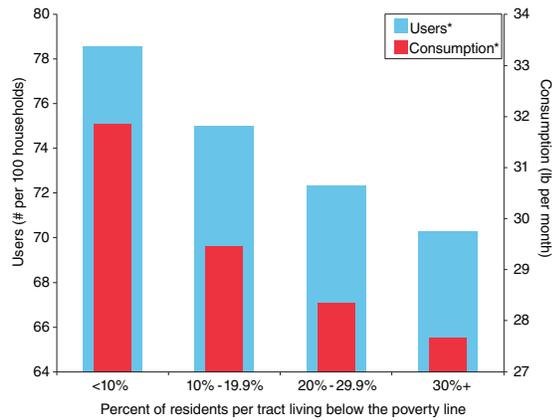
1. CDC. 2013 State Indicator Report on Fruits and Vegetables. [ONLINE] Available at: <http://www.cdc.gov/nutrition/downloads/State-Indicator-Report-Fruits-Vegetables-2013.pdf>. [Accessed 24 November 14].
2. Grimm KA, Moore LV, Scanlon KS. Access to healthier food retailers - United States, 2011. *MMWR* 2013;62(03):20-26.
3. US Census. 2012 American Community Survey 5-year estimates. [ONLINE] Available at: <http://factfinder2.census.gov>. [Accessed 24 November 14].
4. Personal communication with Jennifer Fern. Colorado Health Institute. September 18, 2014
5. USDA. Food Environment Atlas. [ONLINE] Available at: <http://www.ers.usda.gov/data-products/food-environment-atlas.aspx>. [Accessed 24 November 14].
6. CDC, Division of Adolescent and School Health. 2012 Chronic Disease Prevention Profiles - Colorado Secondary Schools [ONLINE] Available at: http://www.cdc.gov/healthyyouth/profiles/pdf/facts/co_chronic_profiles.pdf. [Accessed 24 November 14].

Census tracts that have low fresh fruit and vegetable consumption and/or do not have healthy food retail represent potential areas to enhance access to quality and affordable fruits and vegetables.

Households using fresh fruits and vegetables in past month (per 100 households).



Consumption of fresh fruits and vegetables by Census tract poverty, access to healthy food retail, and access to vehicles.



- As the percentage of tract residents living below poverty increased, there were decreases in both the number of users and consumption of fresh fruits and vegetables.
- Both the number of users and consumption of fresh fruits and vegetables decreased as access to vehicles decreased.
- In tracts with a greater number of individuals living a mile or more from food retailers, there was an increase in both the number of users and consumption of fresh fruits and vegetables.

* Users (blue): number of households using fresh fruits and vegetables in past month per 100 households in that Census tract.

* Consumption (red): pounds of fresh fruits and vegetables used in past month per household using fresh fruits and vegetables in the past month in that Census tract.

Data sources: Nielsen Homescan data (2013) linked to poverty data from U.S. Census 2012 American Community Survey 5-year estimates (available from <http://factfinder2.census.gov/>).

Access data from USDA Food Environmental Atlas (available from <http://www.ers.usda.gov/data-products/food-environment-atlas.aspx>).