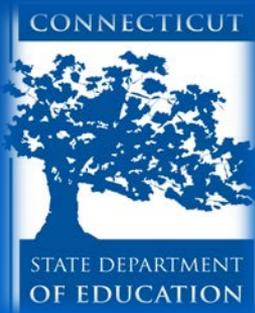
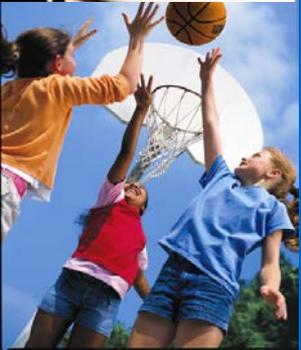


Making the Connection *Healthy Kids Learn Better*

An Update on CSDE Programs and Initiatives on Nutrition and Physical Activity

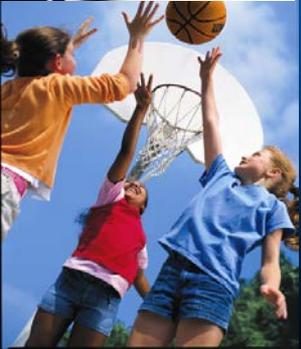


State Board of Education
April 6, 2011



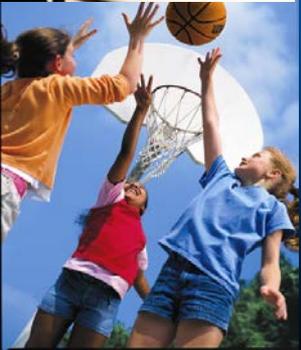
Overview

- The link between nutrition and physical activity and academic achievement
- Children's current nutrition and physical activity status
- Snapshot of CSDE nutrition and physical activity programs
- Recommended state board actions



Making the Connection

- Good nutrition and sufficient physical activity behaviors are essential to children's health and well-being
- Children's health affects learning and academic achievement
- School and child care environments can significantly influence children's nutrition and physical activity behaviors



Good Nutrition Improves Academic Performance

- Food-insufficient children* (ages 6-11) are more likely to
 - ▶ receive lower math scores
 - ▶ repeat a grade
 - ▶ visit a psychologist
 - ▶ have difficulty getting along with other children

* Food Insufficiency: Respondent reported that his or her family sometimes or often did not get enough food to eat

Alaimo, K., Olson, C.M., & Frongillo, E.A. (2001). Food insufficiency and American school-aged children's cognitive, academic, and psychosocial development, 108(1),44-53.



Good Nutrition Improves Academic Performance

- Inadequate consumption of key food groups deprives children of essential nutrients that are necessary for optimal cognitive function
 - ▶ iron deficiency linked to shortened attention span, irritability, fatigue and difficulty concentrating
 - ▶ low protein intake associated with lower achievement scores



Good Nutrition Improves Academic Performance

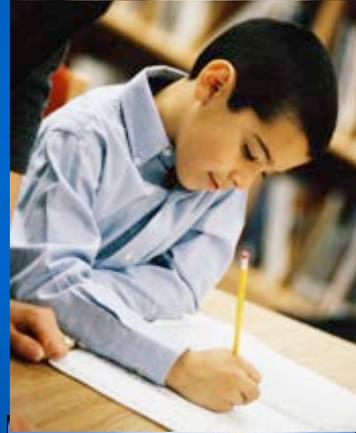
- Well-nourished children who skip breakfast perform worse on tests and have poor concentration
- Children who eat breakfast *learn better*
 - ▶ have higher test scores, work faster, make fewer errors and are more creative
 - ▶ are better able to concentrate on learning
 - ▶ are healthier and have improved attendance
- Children who eat breakfast *behave better*
 - ▶ less likely to be sent to principal or visit school nurse
 - ▶ more cooperative and get along better with classmates



Murphy, J. Pagano, M., Nachmani, J., Sperling, P., Kane, S., & Kleinman, R. (1998). The relationship of school breakfast to psychosocial and academic functioning. *Archives of Pediatric Adolescent Medicine*, 152,899-907.
Minnesota Department of Children, Families and Learning. (1998). *School Breakfast Programs: Energizing the Classroom*. St Paul, MN: Author.

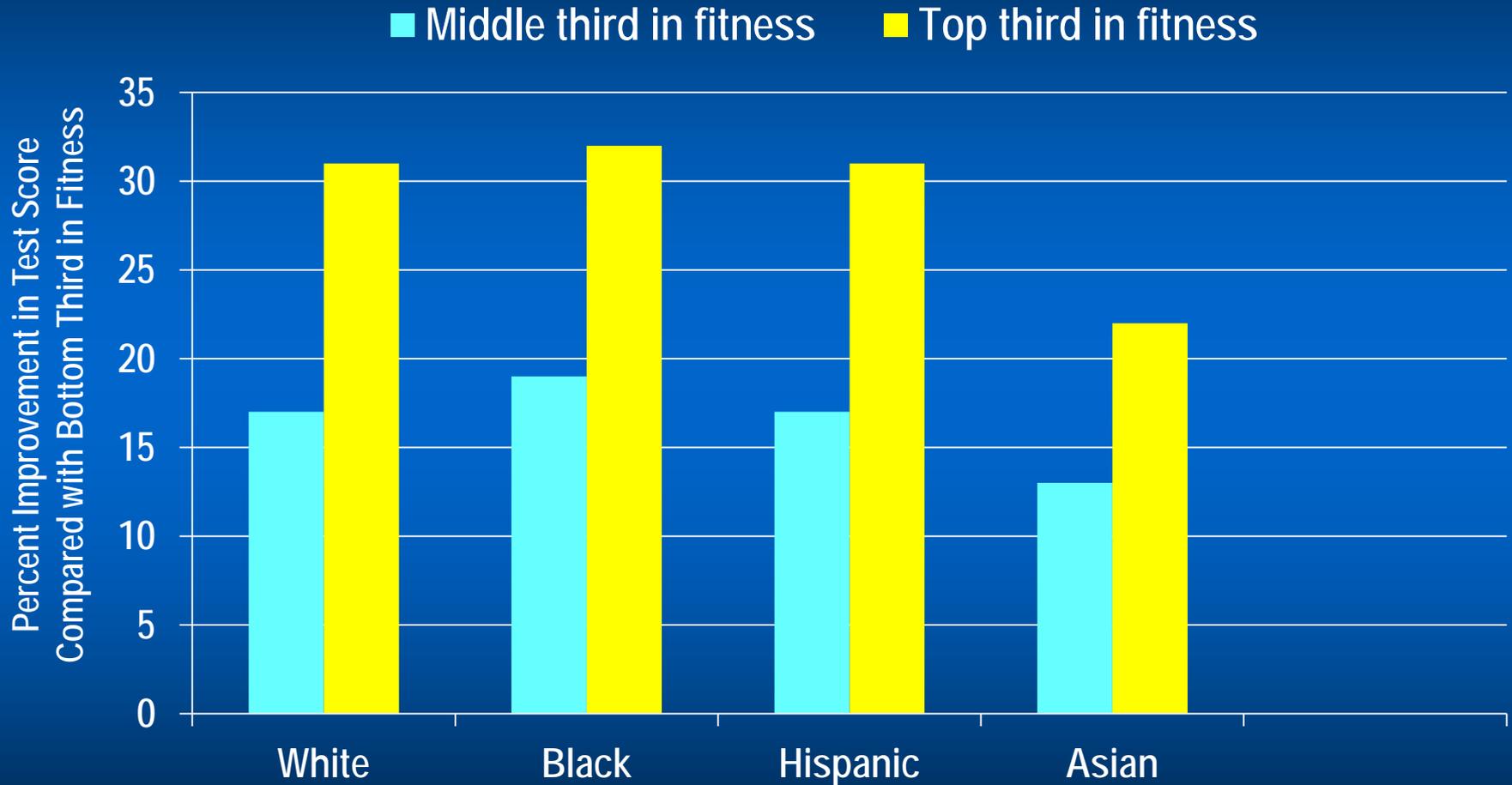
Physical Activity Improves Academic Performance

- Children who are more physically *active* tend to perform better academically
 - ▶ Increased physical activity linked to improved cognitive functioning and improved mental well-being, both of which support learning
- Children who are physically *fit* are likely to have stronger academic performance
 - ▶ Emerging research links poor nutrition and lack of exercise to lower achievement



Action for Healthy Kids. (2006). *The Learning Connection: The Value of Improving Nutrition and Physical Activity in Our Schools*. Robert Wood Johnson Foundation. (Summer 2009). *Active Education: Physical Education, Physical Activity and Academic Performance*. [Research Brief]. <http://www.rwjf.org/files/research/20090925alractiveeducation.pdf>

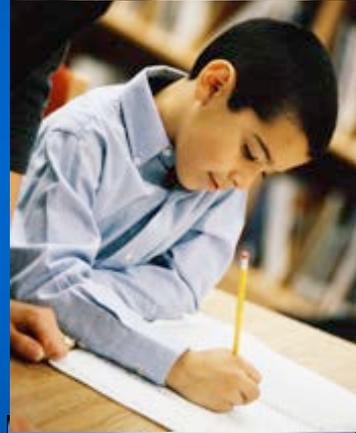
Percent Improvement in Academic Test Score by NYC FITNESSGRAM Score (Grades 4-8, 2007-08)



New York City Department of Health and Mental Hygiene. (2009). Higher levels of fitness associated with better academic performance. *NYC Vital Signs*, 8(1):1-4.

Physical Activity Improves Academic Performance

- Sacrificing physical education or physical activity for classroom time does *not* improve academic performance
- Schools offering intensive physical activity programs see *positive effects on academic achievement* even when time is taken from academic day
 - ▶ increased concentration
 - ▶ improved mathematics, reading and writing scores
 - ▶ reduced disruptive behaviors



Shepard R.J. (1997). Curricular physical activity and academic performance. *Pediatric Exercise Science*, 9:113-126.

Sallis J.F., McKenzie T.L., Kolody B., Lewis M., Marshall S., & Rosengard P. (1999). Effects of health-related physical education on academic achievement: Project SPARK. *Research Quarterly for Exercise and Sport*, 70:127-134.

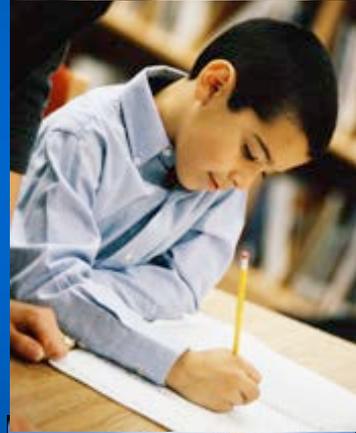
Physical Activity Improves Academic Performance

- Activity breaks can improve cognitive performance and classroom behavior
- Chronic sedentary behavior compromises children's ability and achievement
 - ▶ Exercise linked to increased activity in parts of brain associated with complex thinking, planning, reasoning, abstract thought and self-control
 - ▶ When overweight, sedentary kids start to exercise regularly, their ability to think, plan and do math improves

Jarrett, O.S., Maxwell, D.M., Dickerson, C., Hoge, P., Davies, G., & Yetley, A. (1998). Impact of recess on classroom behavior group effects and individual differences. *The Journal of Educational Research*, 92(2):121-126.

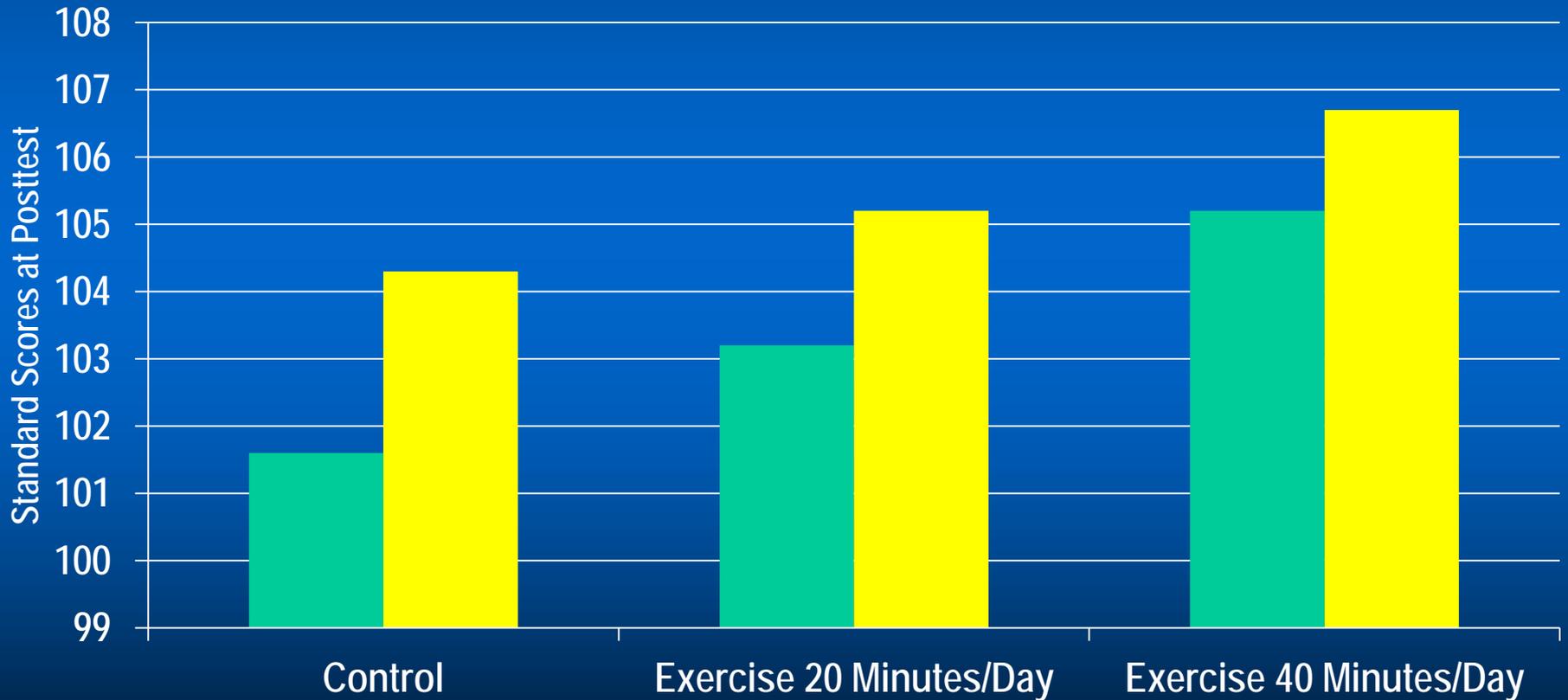
Mahar, M.T., Murphy, S.K., Rowe, D.A., Golden, J., Shields, A.T., & Raedeke, T.D. (2006). Effects of a classroom-based program on physical activity and on-task behavior. *Medicine and Science in Sports and Exercise*, 38 (12):2086-2094.

Davis, C., Tomporowski, P.D., McDowell, J.E., Austin, B.P., & Miller, P.H. (2011). Exercise Improves Executive Function and Achievement and Alters Brain Activation in Overweight Children: A Randomized Controlled Trial. *Health Psychology*, 30(1),91-98.



Percent Improvement in Brain Functioning and Standard Achievement Test Score of Overweight Children (Ages 7-11)

- Executive Function (self-control, planning, reasoning, abstract thought)
- Math Achievement



Davis, C., Tomporowski, P.D., McDowell, J.E., Austin, B.P., & Miller, P.H. (2011). Exercise Improves Executive Function and Achievement and Alters Brain Activation in Overweight Children: A Randomized Controlled Trial. *Health Psychology, 30*(1), 91-98.

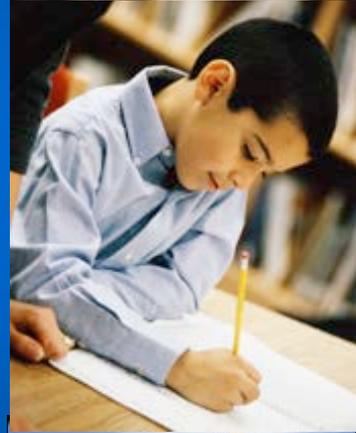
Dietary Guidelines 2010

- Science-based nutrition and physical activity guidelines to help Americans
 - attain and maintain a healthy weight
 - reduce risk of chronic disease, e.g., cardiovascular disease, hypertension, type 2 diabetes, osteoporosis, cancer
 - promote overall health
- Two main concepts
 - Maintain calorie balance over time to achieve and sustain a healthy weight
 - Focus on consuming nutrient-dense foods and beverages



Physical Activity Guidelines for Ages 6-17

- At least 60 minutes of daily physical activity, mostly aerobic
- At least 3 days per week of
 - ▶ vigorous-intensity physical activity (running, biking, jumping rope)
 - ▶ muscle-strengthening physical activity (climbing, tug-of-war)
 - ▶ bone-strengthening physical activity (running, jumping)
- Physical activities should be age appropriate, enjoyable and offer variety

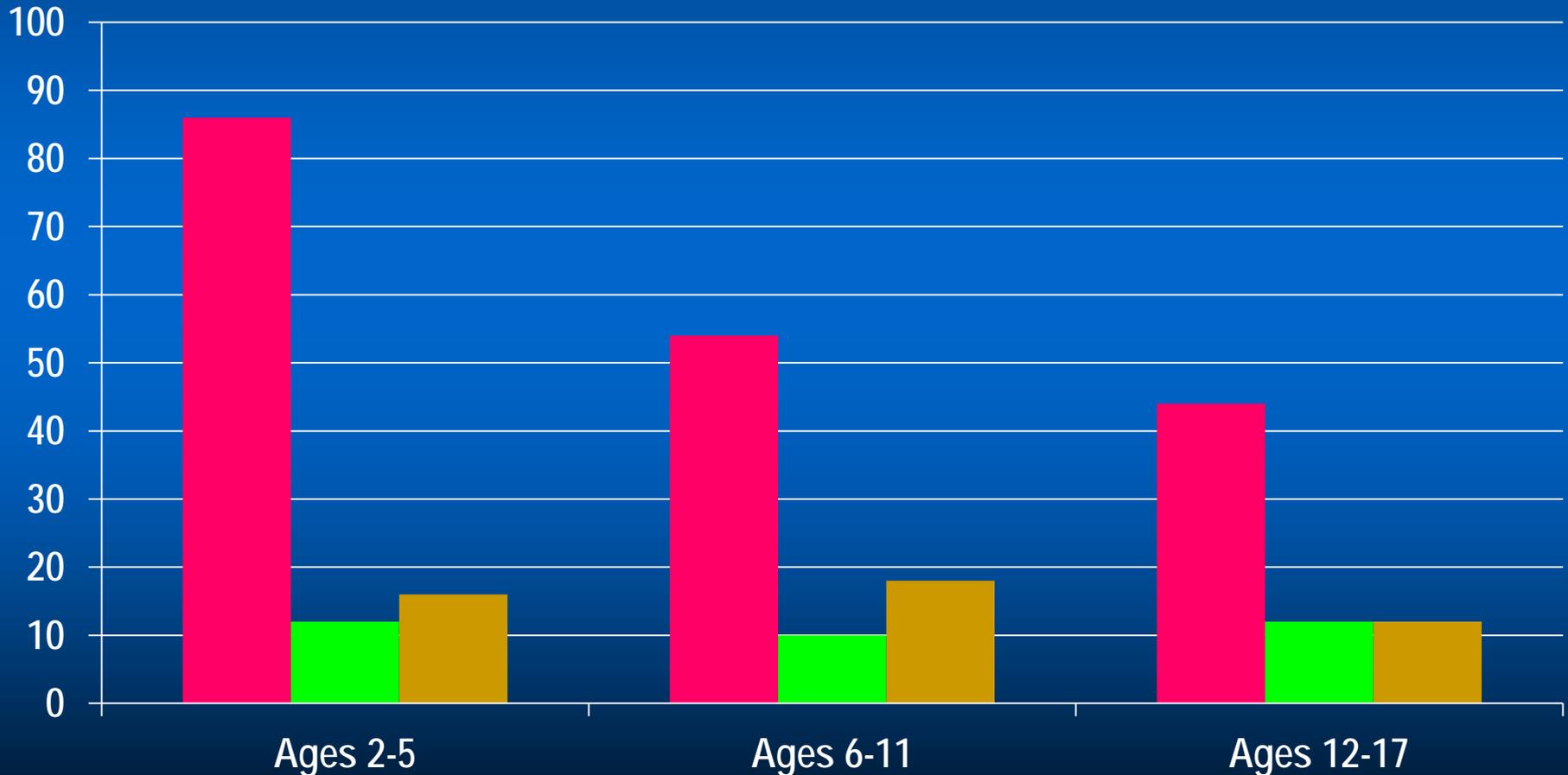


Percentage of Children and Adolescents Meeting Total *Healthy Eating Index* Scores*

Whole Fruit, Dark Green and Orange Vegetables, Legumes and Whole Grains

*A score of 100 means that recommendations are being met

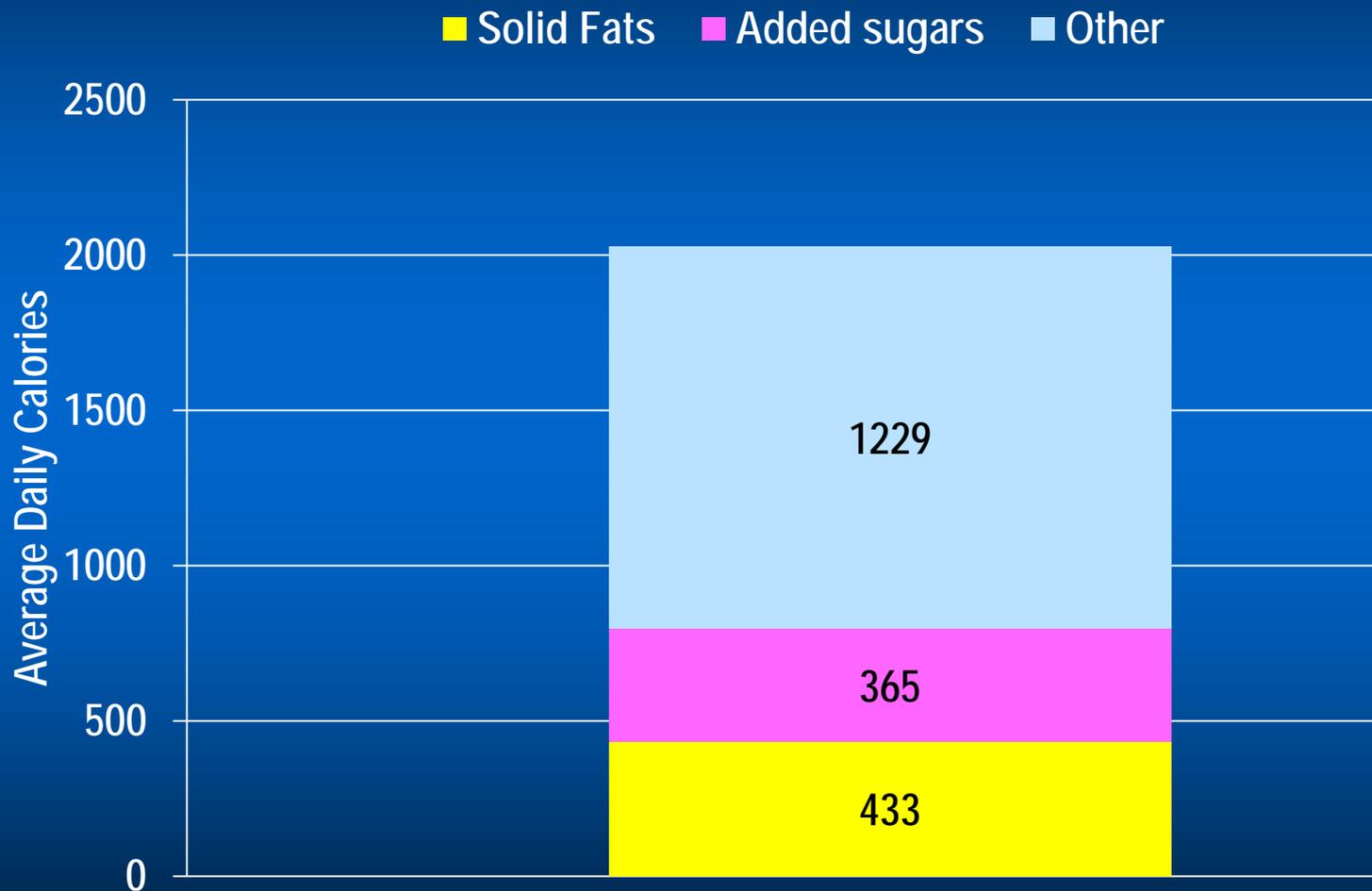
■ Whole Fruit ■ Dark Green and Orange Vegetables, Legumes ■ Whole Grains



U.S. Department of Agriculture Center for Nutrition Policy and Promotion. (2009). The quality of children's diets in 2003-04 as measured by the Healthy Eating Index - 2005. *Nutrition Insight*, 43. <http://www.cnpnp.usda.gov/Publications/NutritionInsights/Insight43.pdf>

Contribution of Solid Fats and Added Sugars to Children's Average Daily Calories (Ages 2-18)*

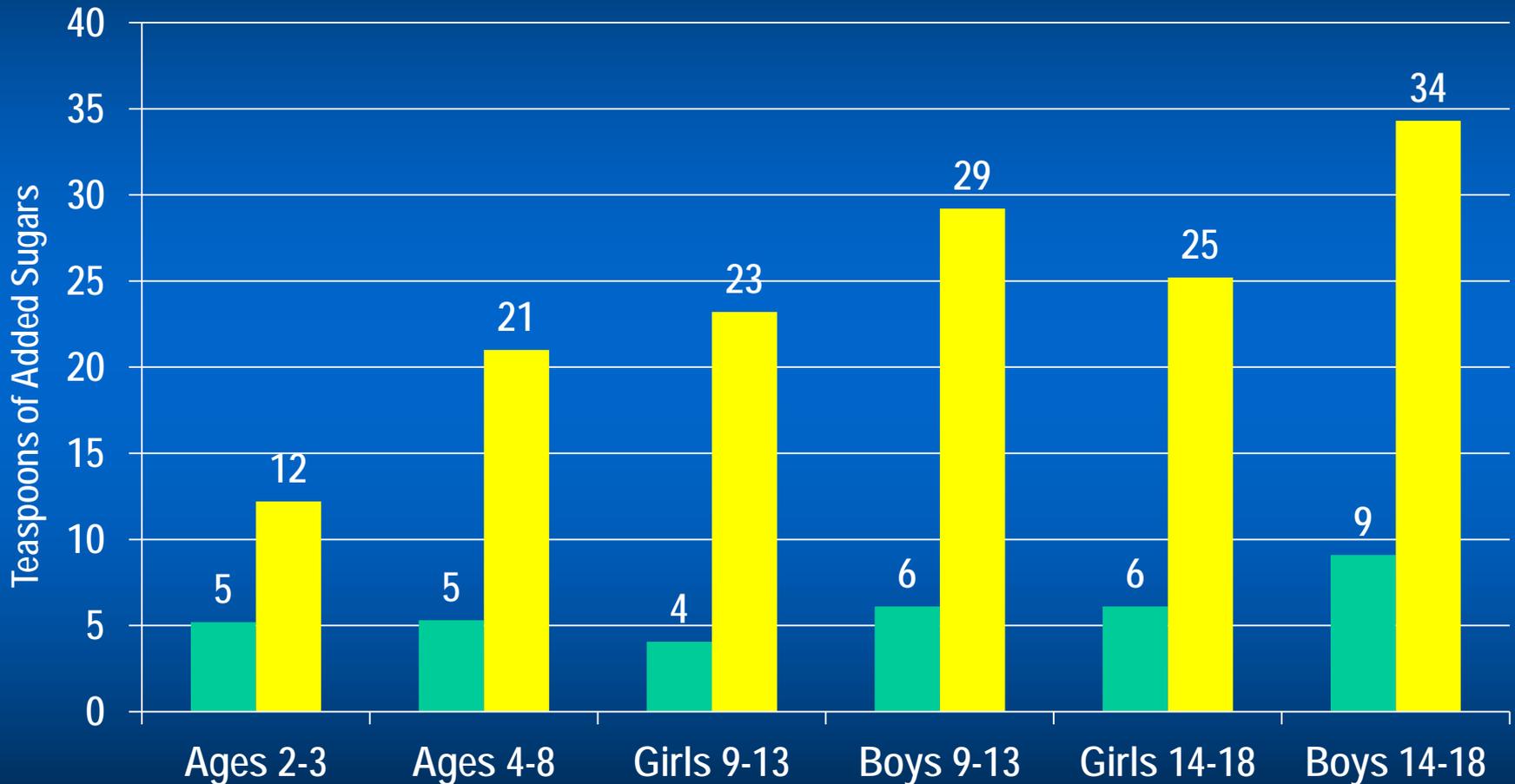
***798 of 2,027 calories (39 percent)**



Reedy, J., & Krebs-Smith, S.M.(2010). Dietary Sources of Energy, Solid Fats, and Added Sugars among Children and Adolescents in the United States. *Journal of the American Dietetic Association*, 110(10):1477-1484.

Recommended versus Actual Daily Consumption of Added Sugars (in Teaspoons)

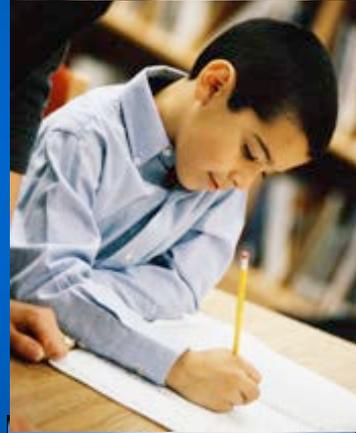
■ Recommended Limit ■ Average Consumption



Johnson, R.K. et al. on behalf of the American Heart Association Nutrition Committee of the Council on Nutrition, Physical Activity, and Metabolism and the Council on Epidemiology and Prevention. (2009). Dietary sugars intake and cardiovascular health: A scientific statement from the American Heart Association. *Circulation*, 120:1011-1020.

Children's Physical Activity

- Most children do not get enough physical activity
- Physical activity declines as children get older
 - ▶ begins to decrease between ages 3-5
 - ▶ by high school, 65 percent do not meet daily physical activity recommendations



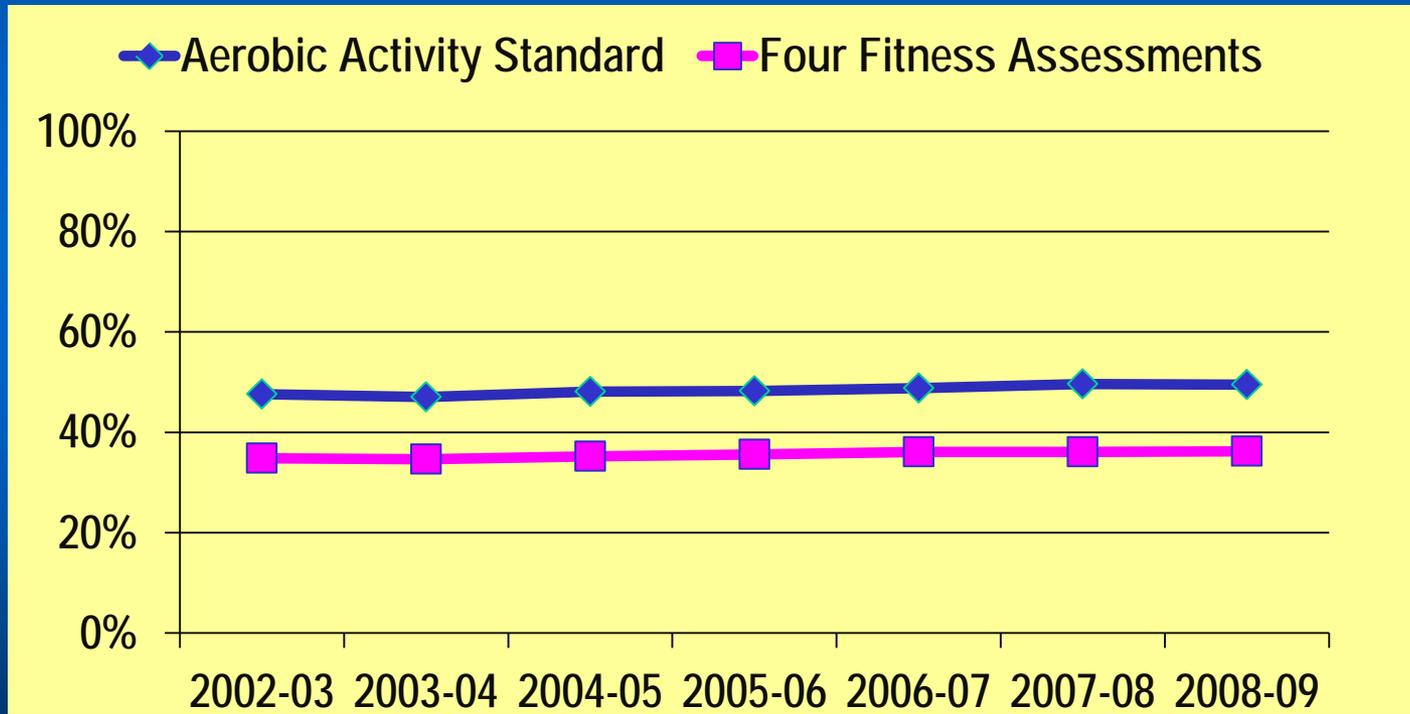
Taylor, R.W., Murdoch, L. Carter, P., Gerrard, D.F., Williams, S.M., & Taylor, B.J. (2009). Longitudinal study of physical activity and inactivity in preschoolers: The FLAME study. *Medicine & Science in Sports & Exercise*, 41(1): 96-102.

Centers for Disease Control and Prevention. (June 6, 2008). Youth Risk Behavior Surveillance — United States, 2007. Surveillance Summaries. *Morbidity and Mortality Weekly Report*, 57(SS-4):1-131.

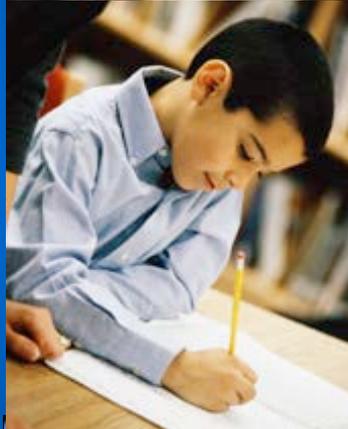
Connecticut State Department of Education. (2008). Unpublished Data on the Connecticut Physical Fitness Assessment from the 2008-09 Strategic School Profiles. Hartford, CT: Author.

Percentage of Connecticut Students Passing State Physical Fitness Assessment (Grades 4, 6, 8 and 10)*

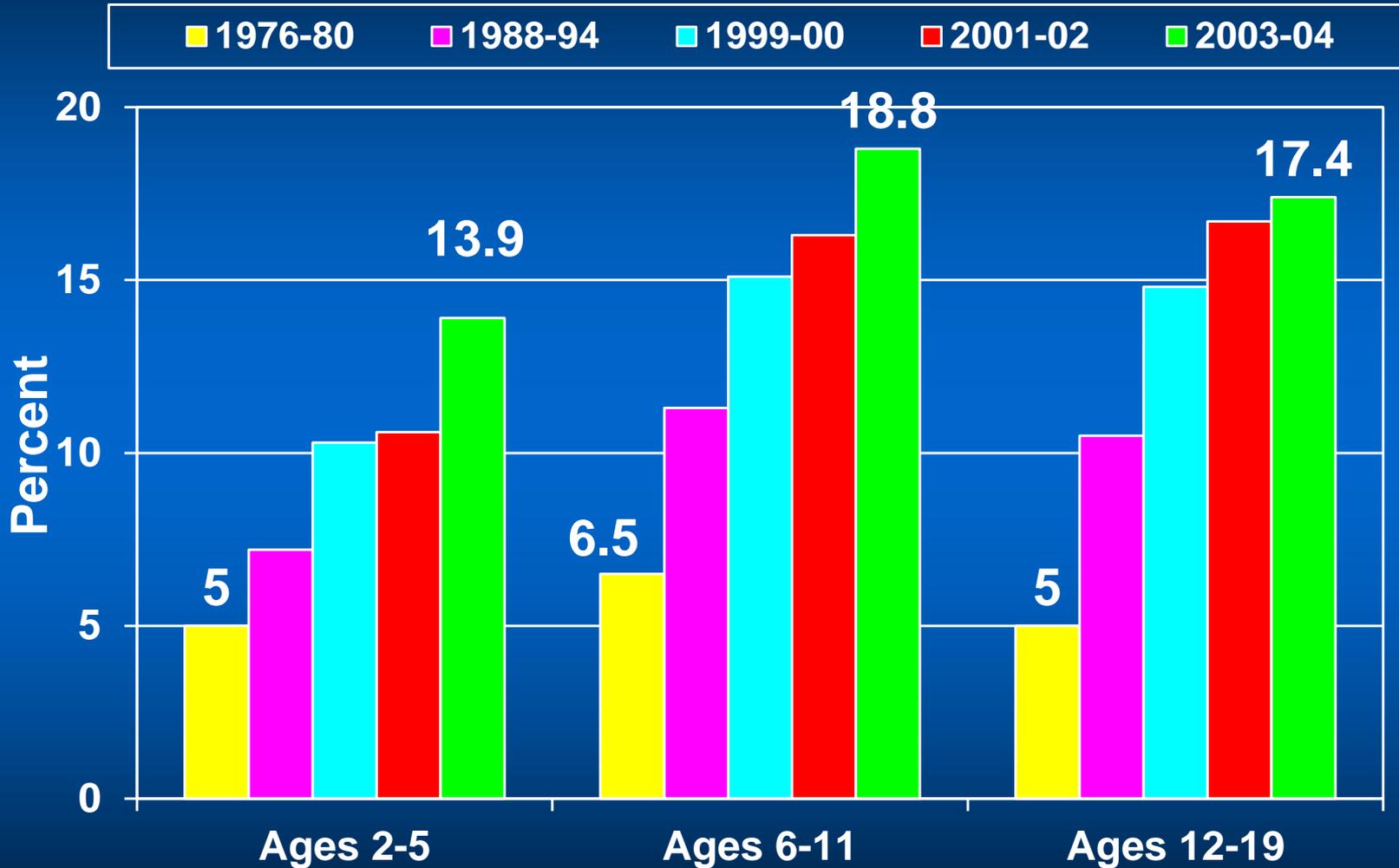
- In the 2008-09 school year, 51 percent of Connecticut's students did not meet the aerobic activity standard and 64 percent could not pass all four components of a health-related physical fitness assessment



* Data for school years 2009-10 and 2010-11 are not included because the CSDE is in the second testing year of a two-year cycle using a new generation fitness test and the data are not yet conclusive



Percentage of Overweight Children and Adolescents Ages 2-19 Years



Centers for Disease Control and Prevention, National Center for Health Statistics. (2006). *Prevalence of Overweight Among Children and Adolescents: United States, 2003-2004*. http://www.cdc.gov/nchs/data/hestat/overweight/overweight_child_03.htm

U. S. Children Born in 2000

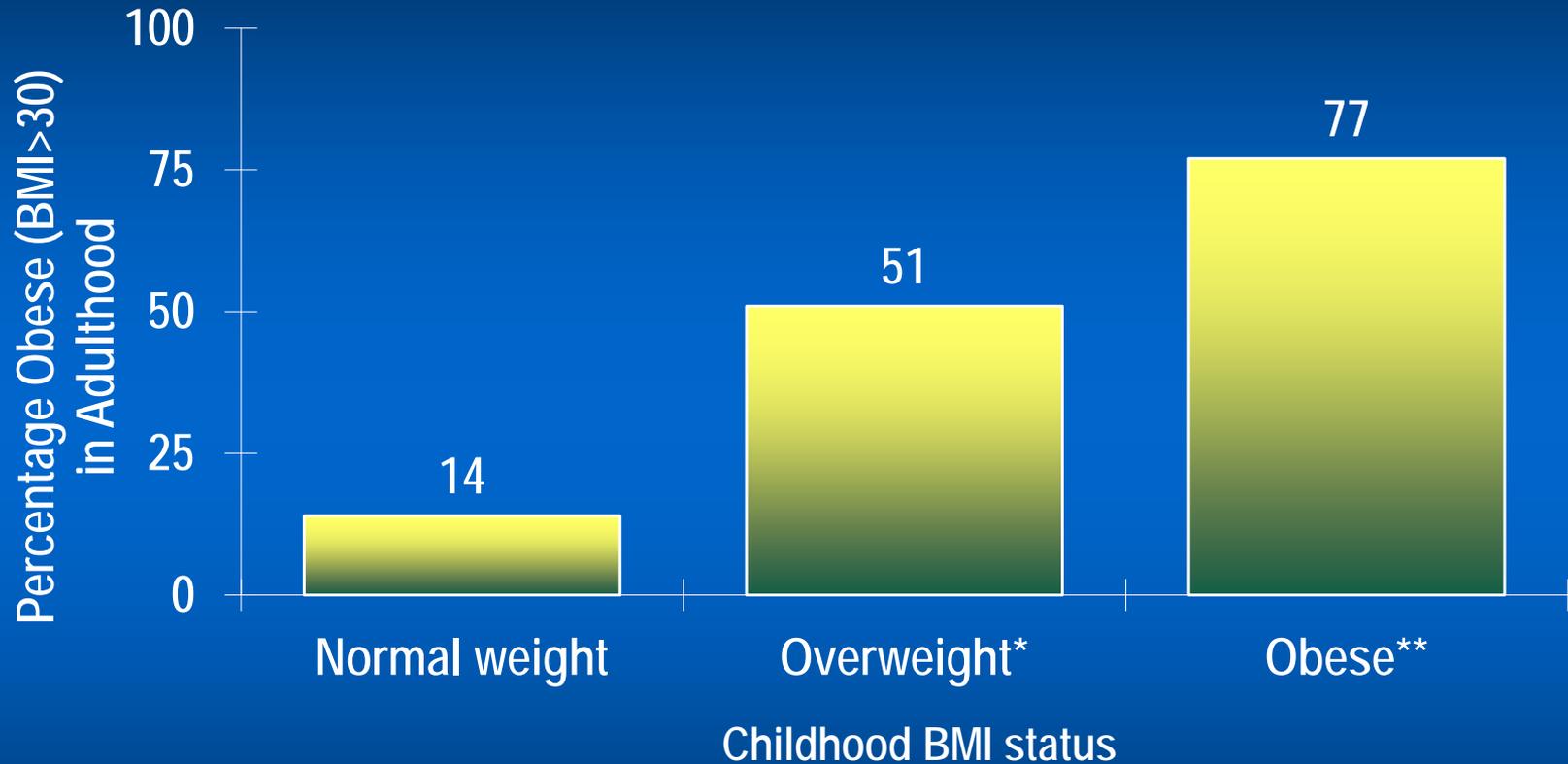


1 in **3**

will develop diabetes during lifetime

Narayan K.M., Boyle J.P., Thompson T.J., Sorensen S.W., & Williamson D.F. (2003). Lifetime risk for diabetes mellitus in the United States. *Journal of the American Medical Association*, 290:1884-1890.

Association Between Body Mass Index (BMI) in Childhood and Adult Obesity



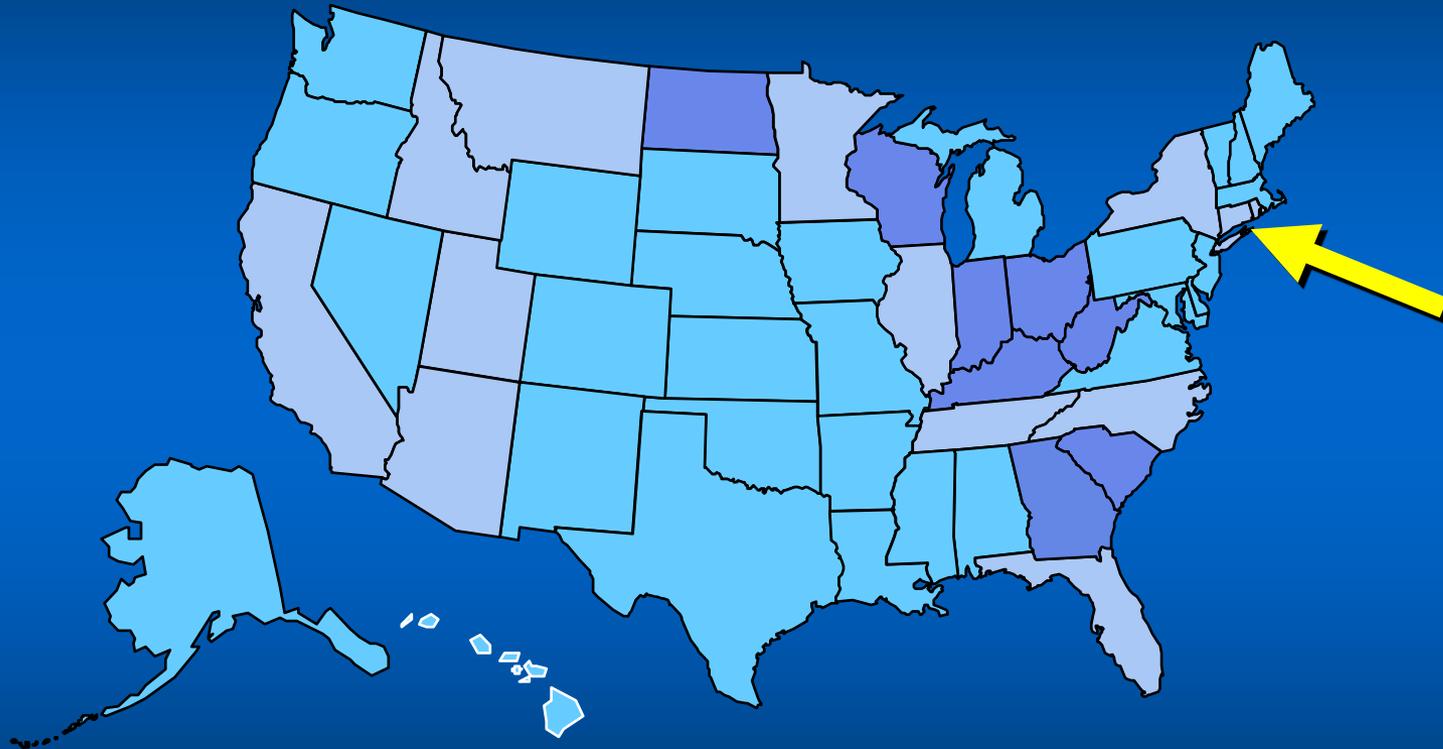
- * BMI at or above the 85th percentile and lower than the 95th percentile
- ** BMI at or above the 95th percentile

Freedman D.S., Khan L.K., Dietz W.H., Srinivasan S.R., & Berenson G.S. (2001). Relationship of childhood obesity to coronary heart disease risk factors in adulthood: the Bogalusa Study. *Pediatrics*, 108(3):712-718.

Obesity Trends* Among U.S. Adults

BRFSS, 1985

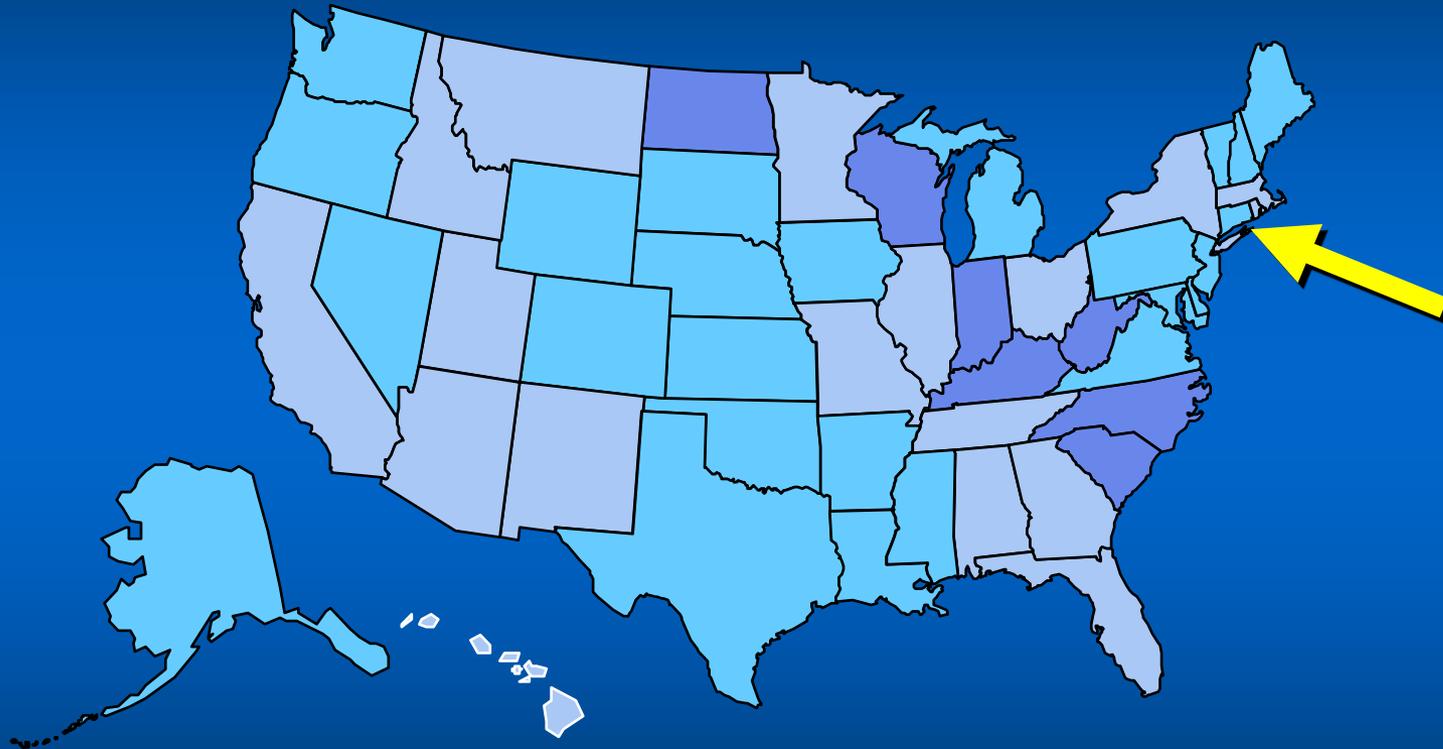
(*BMI ≥ 30 , or about 30 pounds overweight for 5' 4" person)



Obesity Trends* Among U.S. Adults

BRFSS, 1986

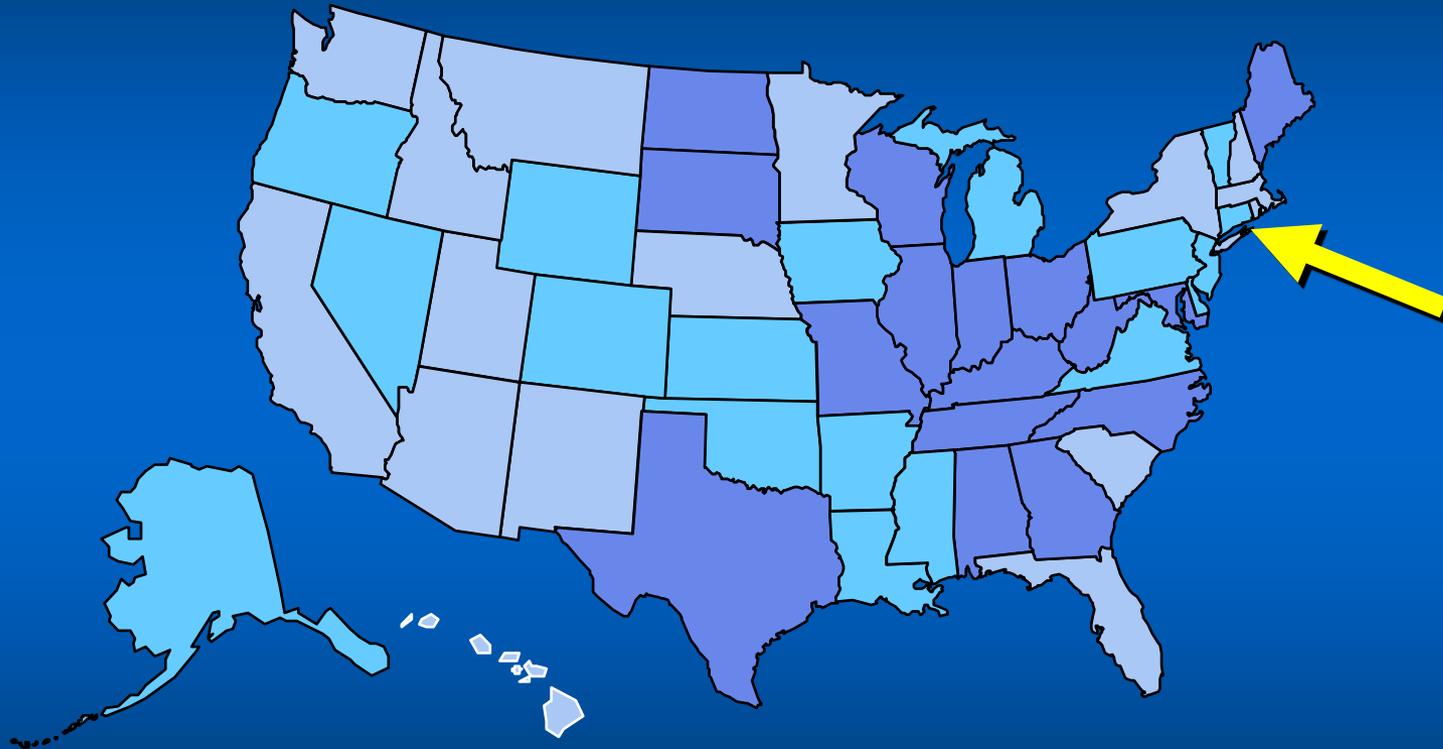
(*BMI ≥ 30 , or about 30 pounds overweight for 5' 4" person)



Obesity Trends* Among U.S. Adults

BRFSS, 1987

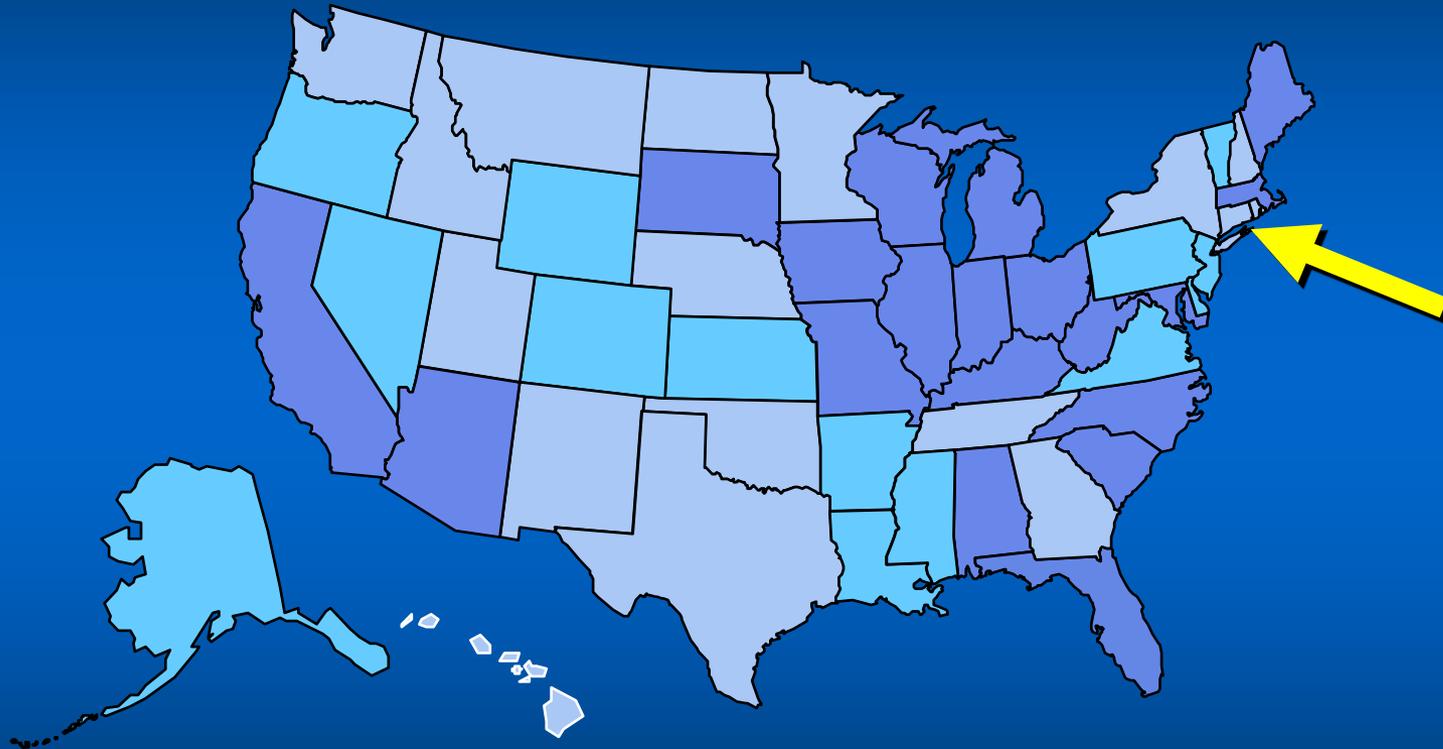
(*BMI ≥ 30 , or about 30 pounds overweight for 5' 4" person)



Obesity Trends* Among U.S. Adults

BRFSS, 1988

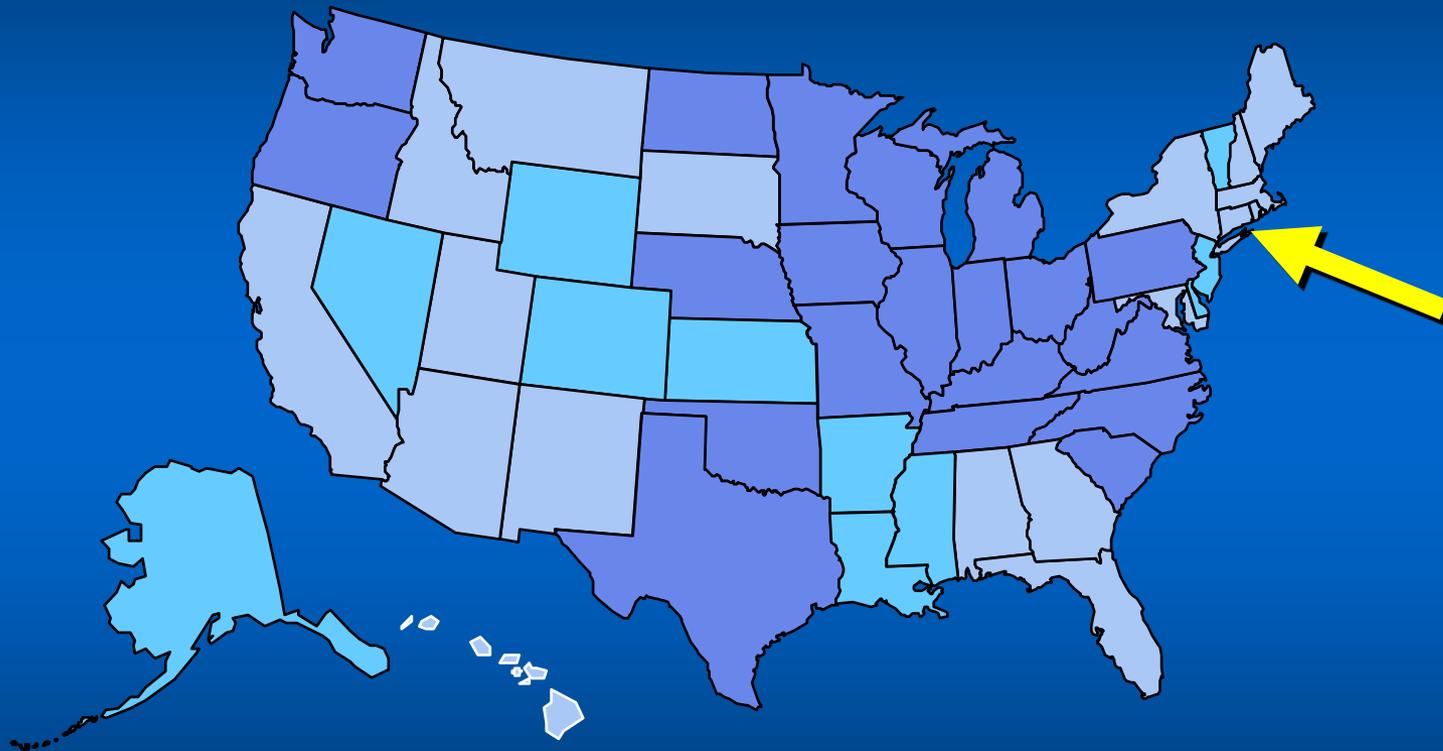
(*BMI ≥ 30 , or about 30 pounds overweight for 5' 4" person)



Obesity Trends* Among U.S. Adults

BRFSS, 1989

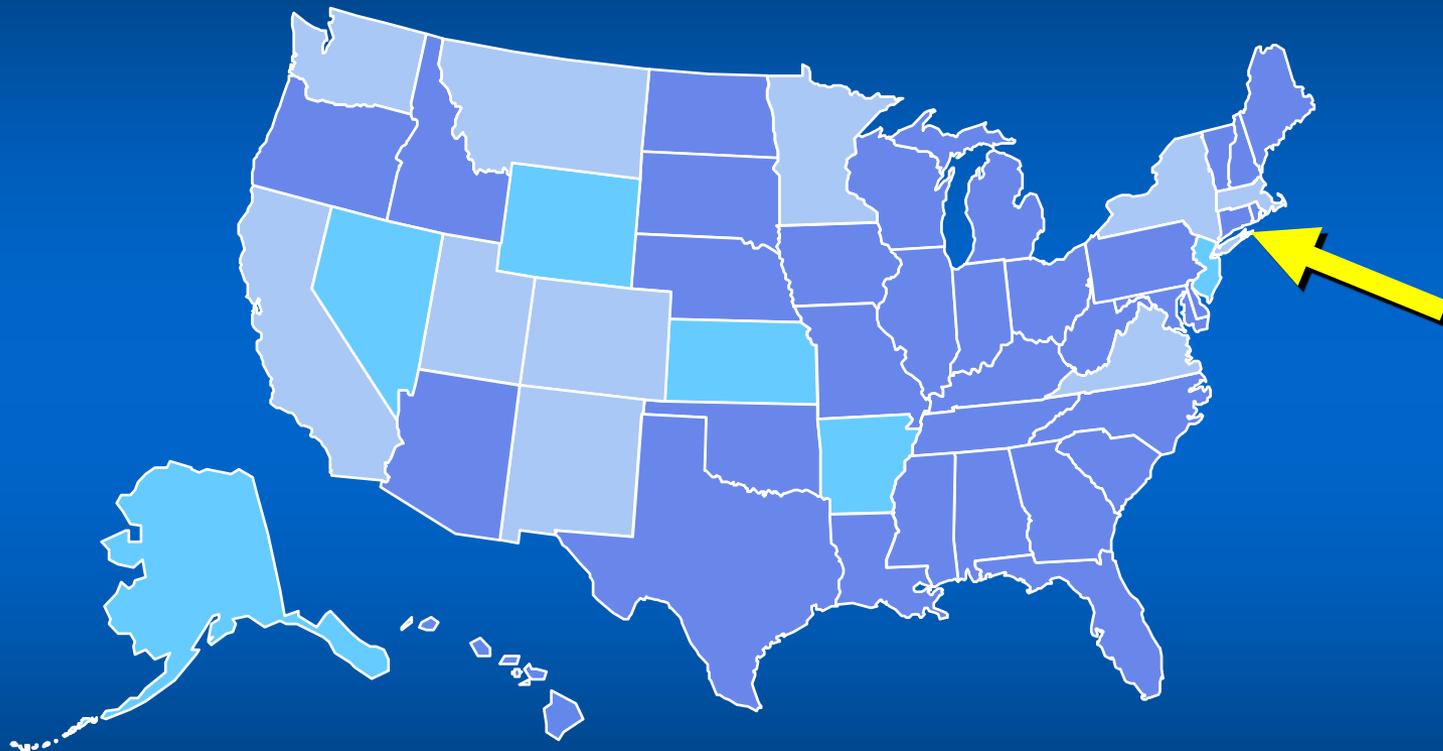
(*BMI ≥ 30 , or about 30 pounds overweight for 5' 4" person)



Obesity Trends* Among U.S. Adults

BRFSS, 1990

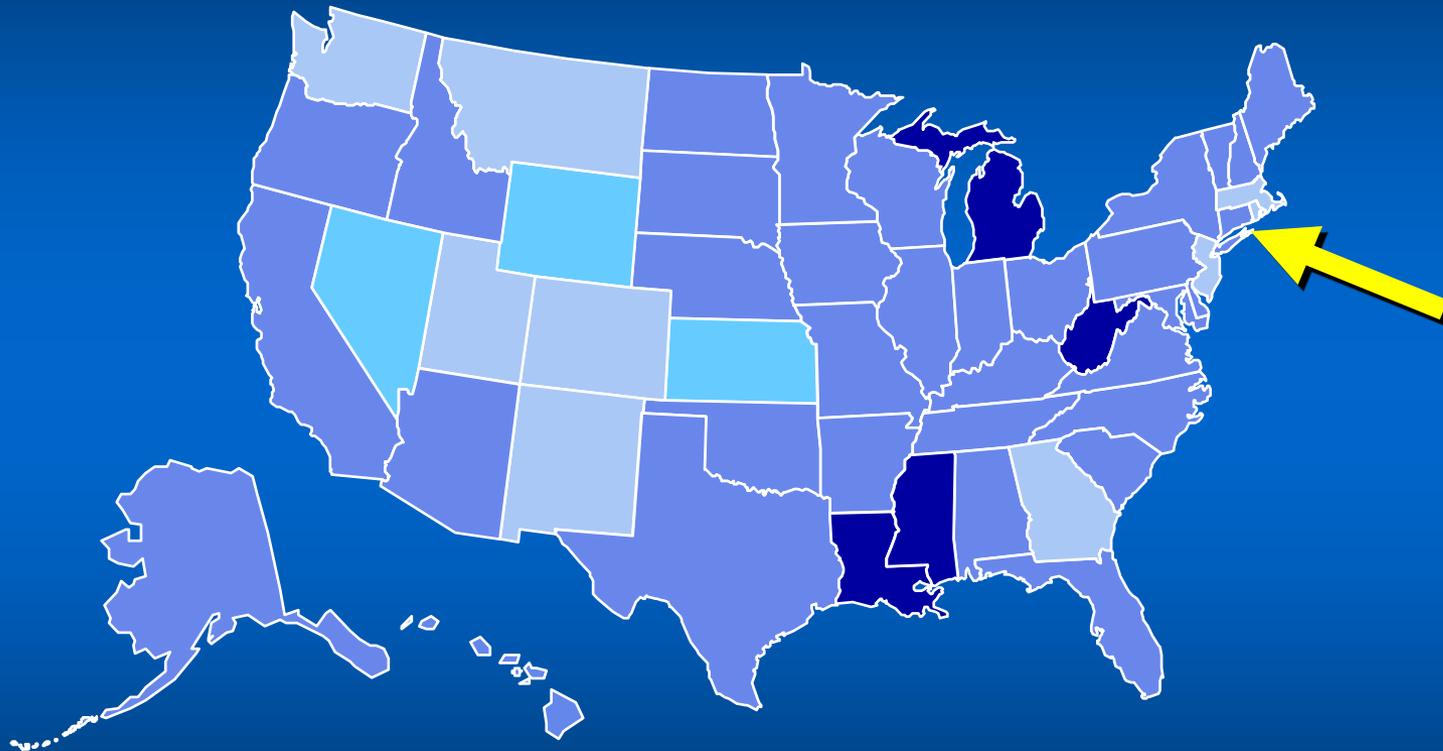
(*BMI ≥ 30 , or about 30 pounds overweight for 5' 4" person)



Obesity Trends* Among U.S. Adults

BRFSS, 1991

(*BMI ≥ 30 , or about 30 pounds overweight for 5' 4" person)

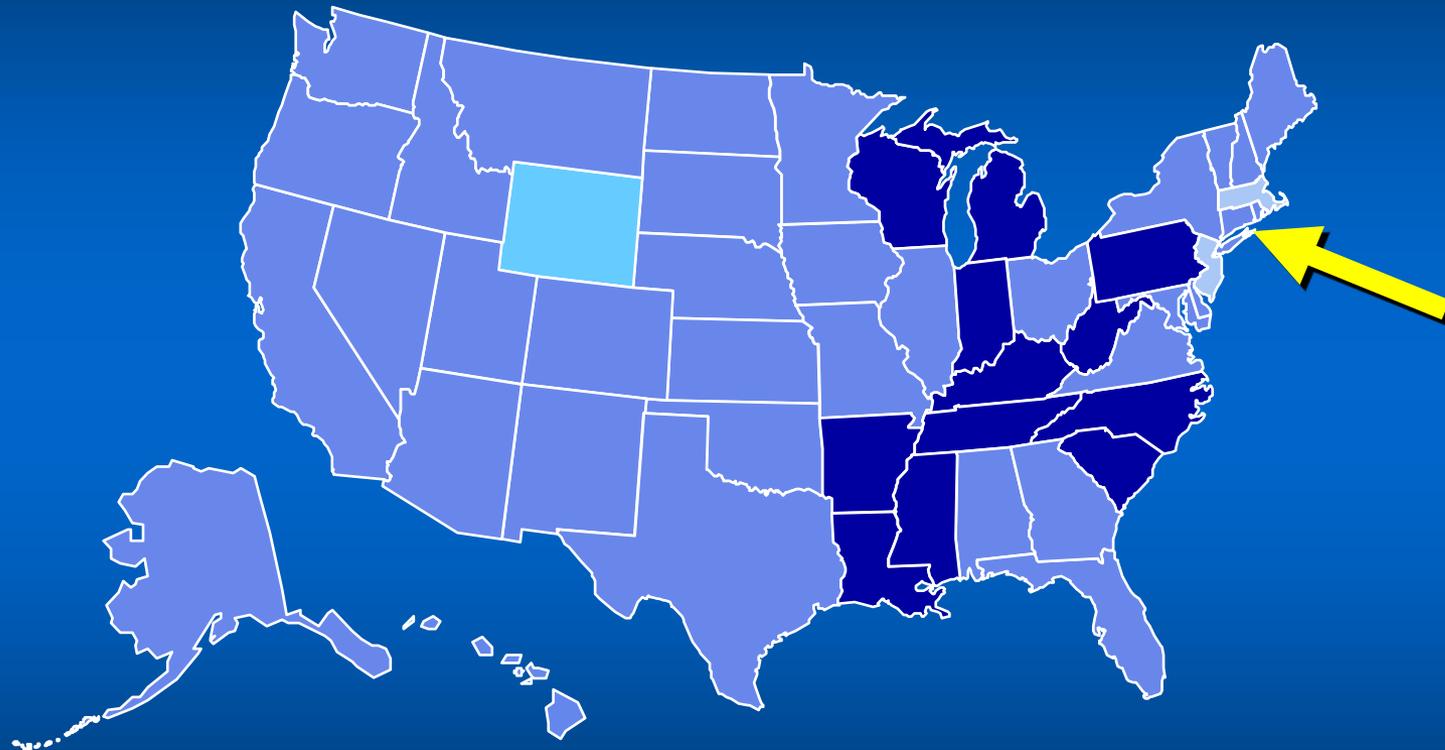


Legend: No Data, <10%, 10%-14%, 15%-19%

Obesity Trends* Among U.S. Adults

BRFSS, 1993

(*BMI ≥ 30 , or about 30 pounds overweight for 5' 4" person)

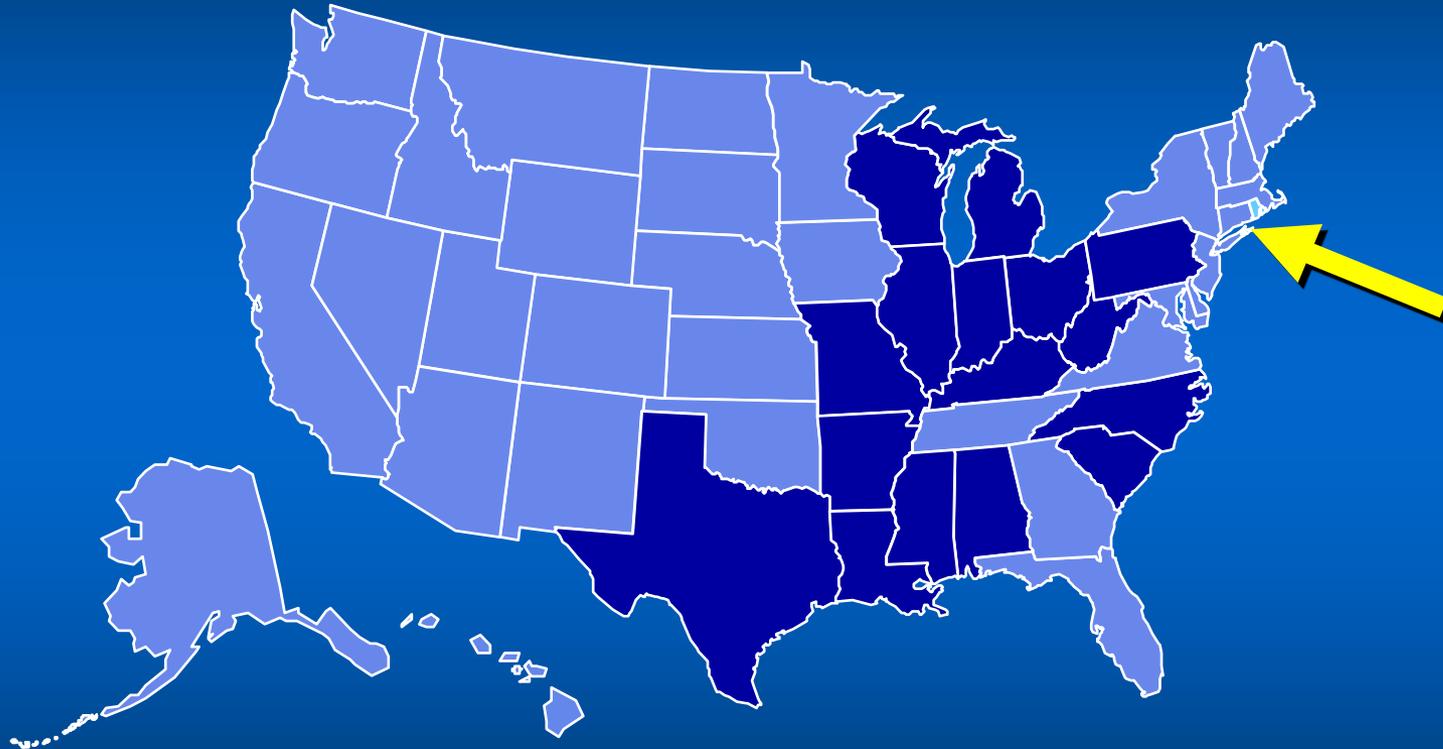


Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System (BRFSS). <http://www.cdc.gov/obesity/data/trends.html>

Obesity Trends* Among U.S. Adults

BRFSS, 1994

(*BMI ≥ 30 , or about 30 pounds overweight for 5' 4" person)

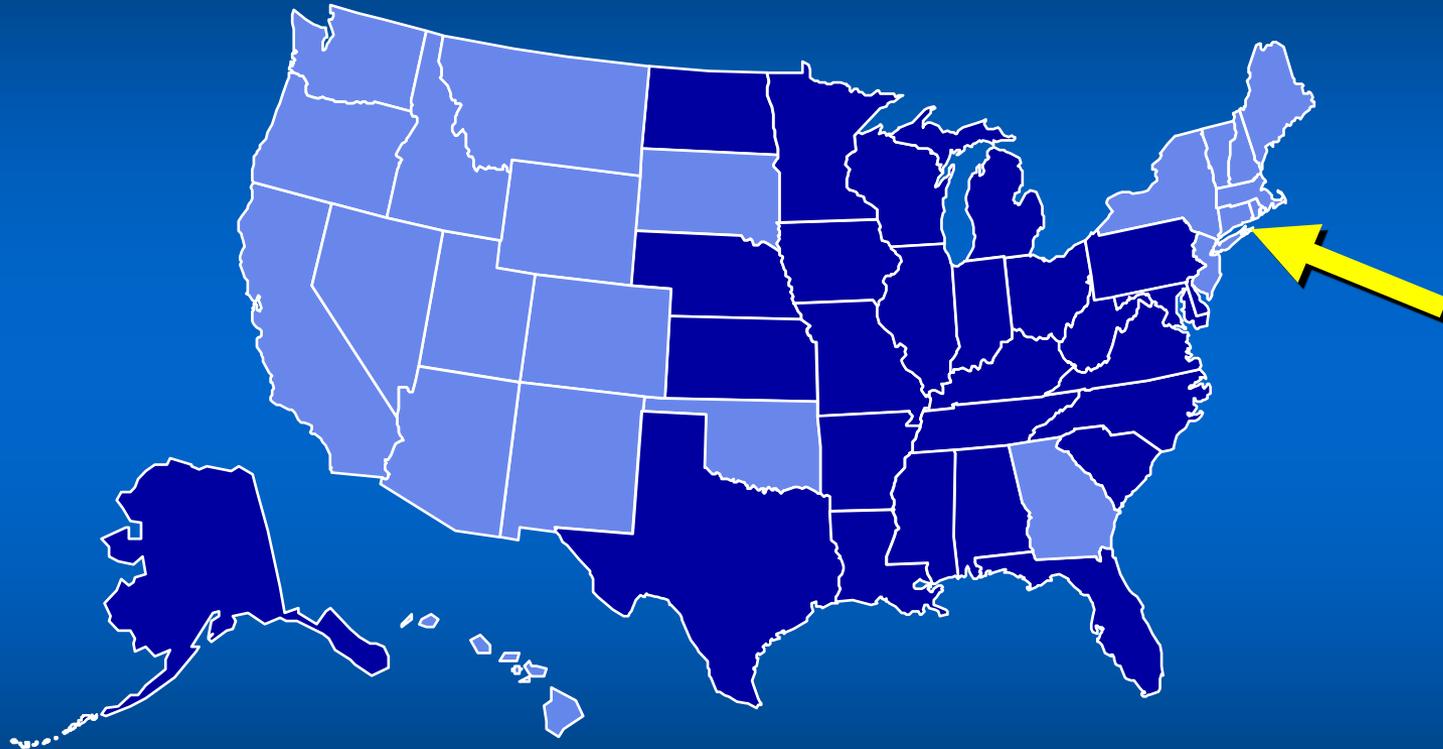


■ No Data ■ <10% ■ 10%-14% ■ 15%-19%

Obesity Trends* Among U.S. Adults

BRFSS, 1995

(*BMI ≥ 30 , or about 30 pounds overweight for 5' 4" person)

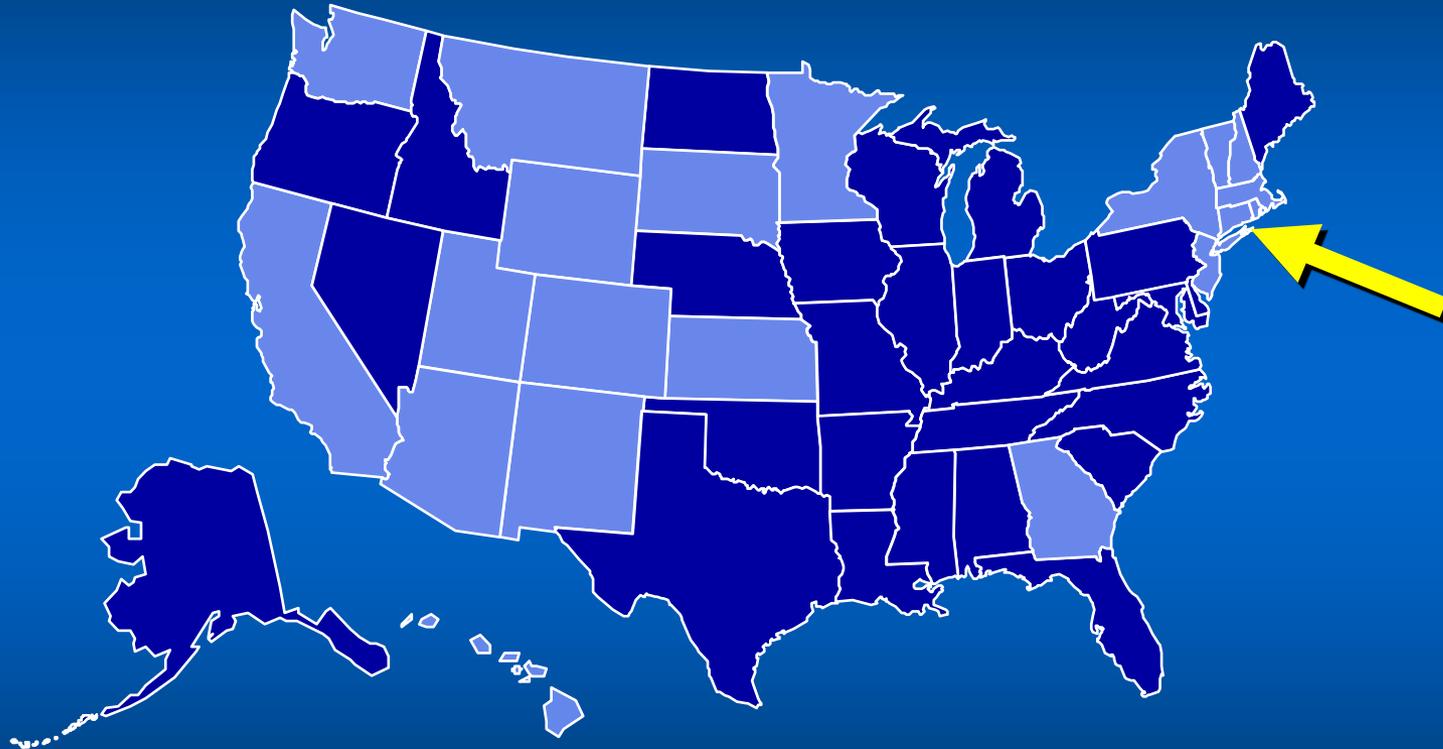


■ No Data ■ <10% ■ 10%-14% ■ 15%-19%

Obesity Trends* Among U.S. Adults

BRFSS, 1996

(*BMI ≥ 30 , or about 30 pounds overweight for 5' 4" person)

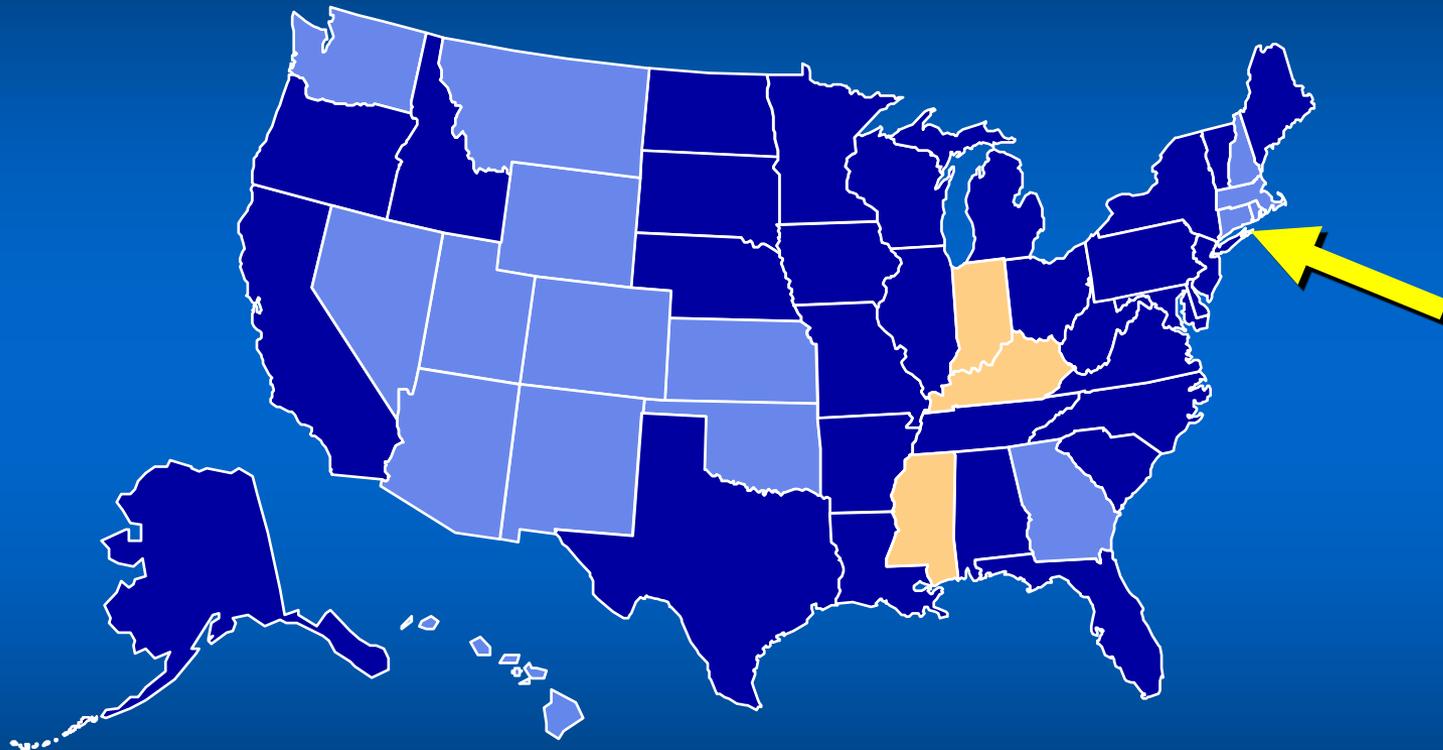


■ No Data ■ <10% ■ 10%-14% ■ 15%-19%

Obesity Trends* Among U.S. Adults

BRFSS, 1997

(*BMI ≥ 30 , or about 30 pounds overweight for 5' 4" person)

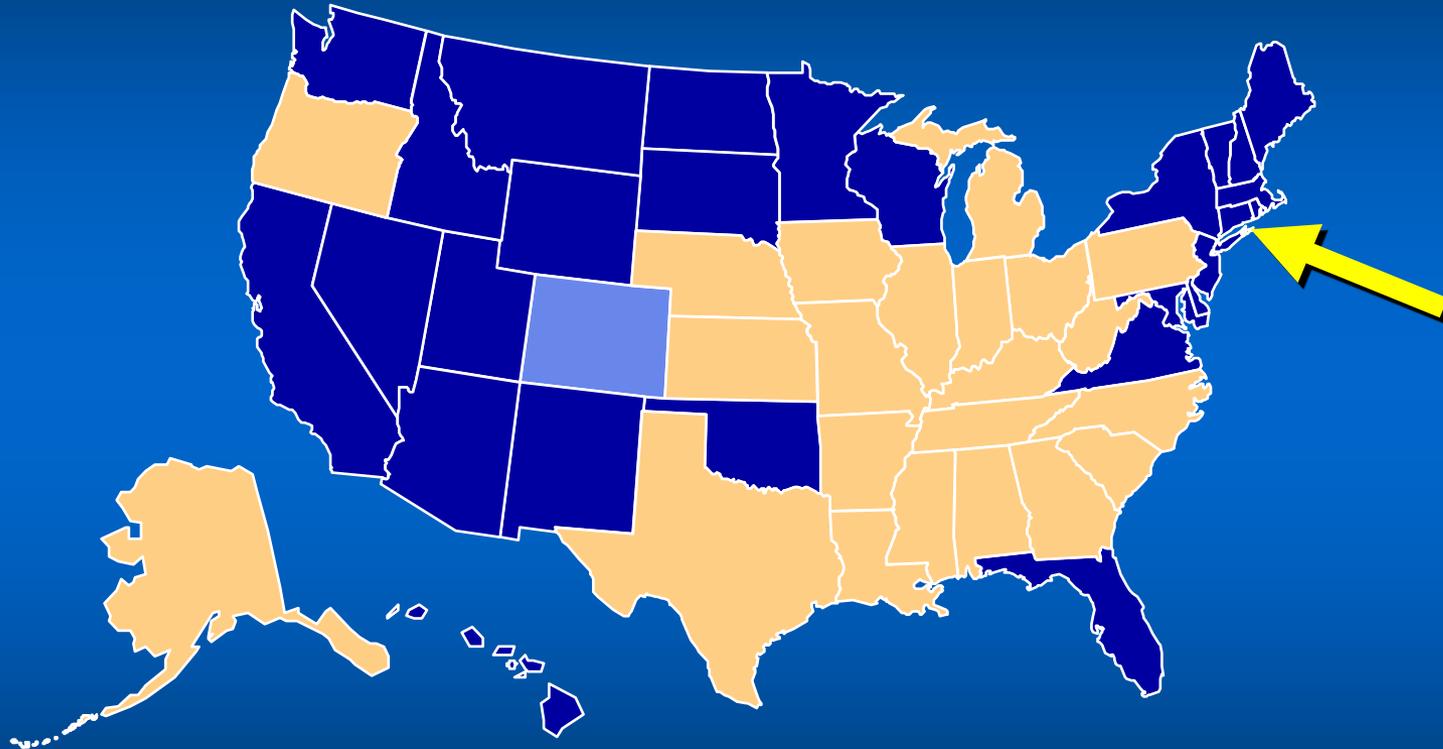


■ No Data ■ <10% ■ 10%–14% ■ 15%–19% ■ $\geq 20\%$

Obesity Trends* Among U.S. Adults

BRFSS, 2000

(*BMI ≥ 30 , or about 30 pounds overweight for 5' 4" person)

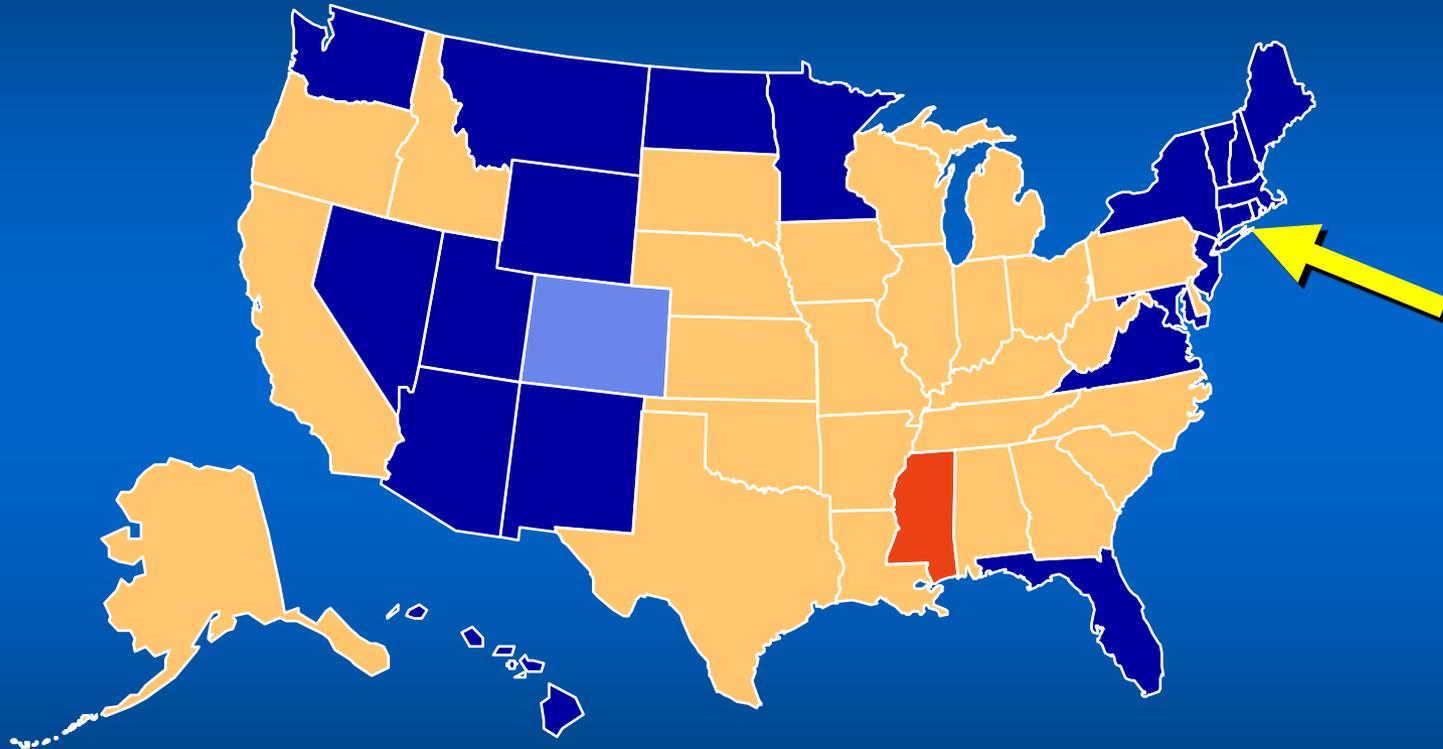


No Data <10% 10-14% 15-19% ≥20%

Obesity Trends* Among U.S. Adults

BRFSS, 2001

(*BMI ≥ 30 , or about 30 pounds overweight for 5' 4" person)



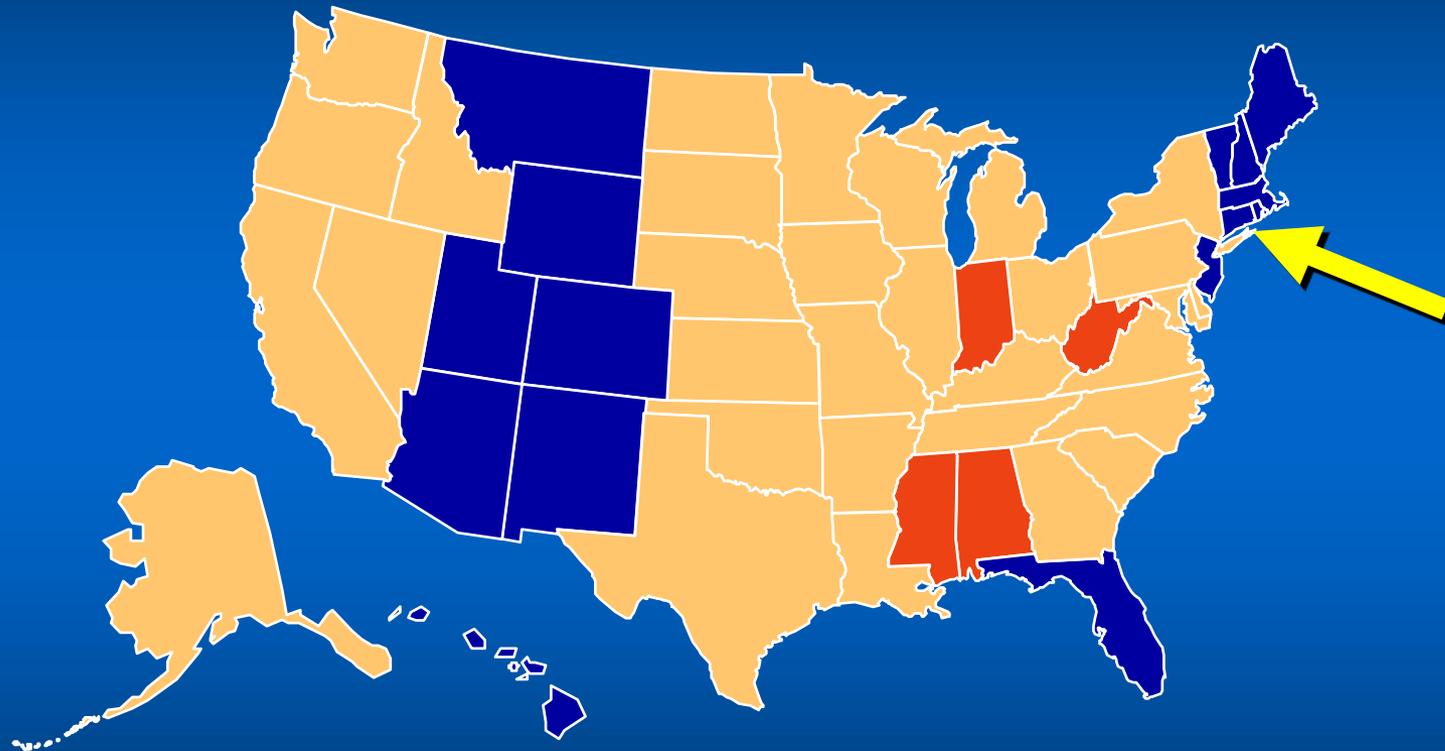
Legend: No Data, <10%, 10-14%, 15-19%, 20-24%, $\geq 25\%$

Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System (BRFSS). <http://www.cdc.gov/obesity/data/trends.html>

Obesity Trends* Among U.S. Adults

BRFSS, 2003

(*BMI ≥ 30 , or about 30 pounds overweight for 5' 4" person)

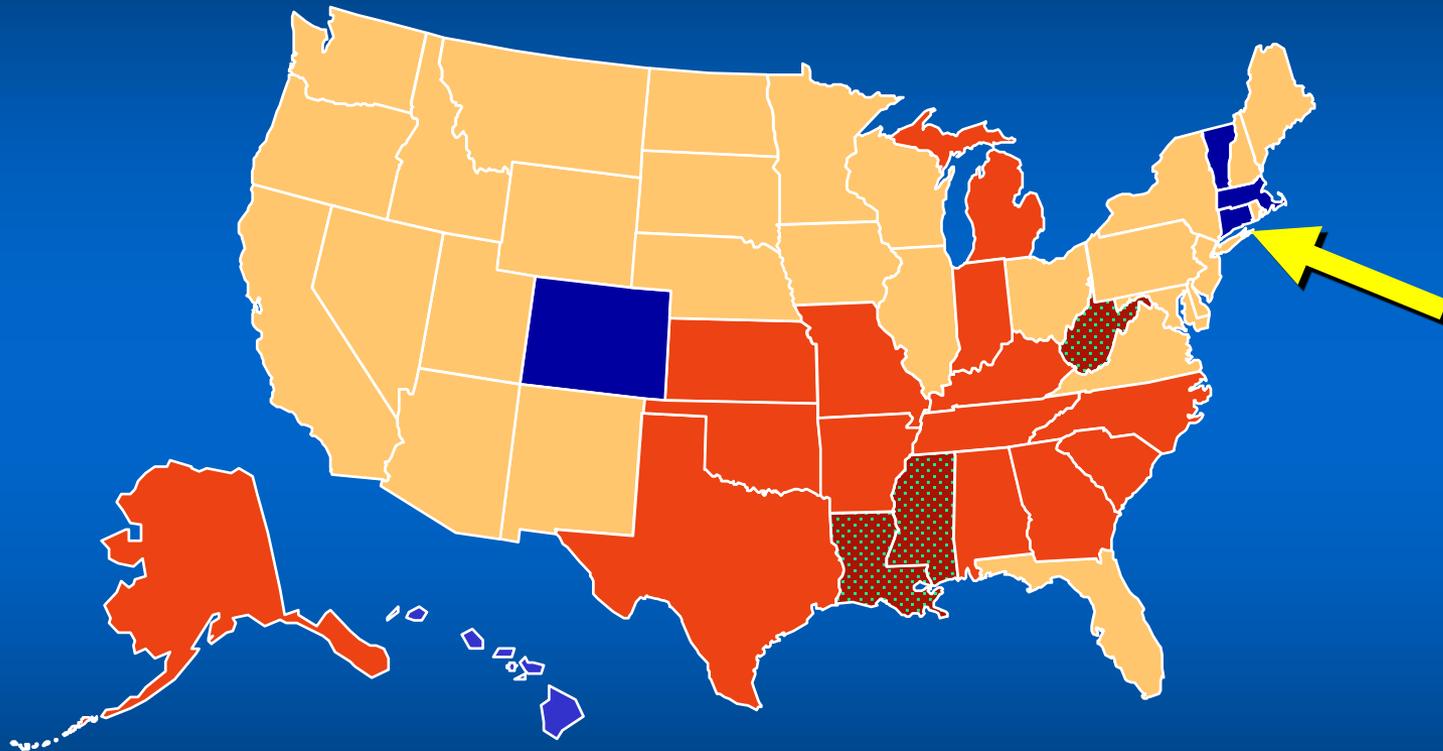


Legend: No Data, <10%, 10%–14%, 15%–19%, 20%–24%, $\geq 25\%$

Obesity Trends* Among U.S. Adults

BRFSS, 2005

(*BMI ≥ 30 , or about 30 pounds overweight for 5' 4" person)



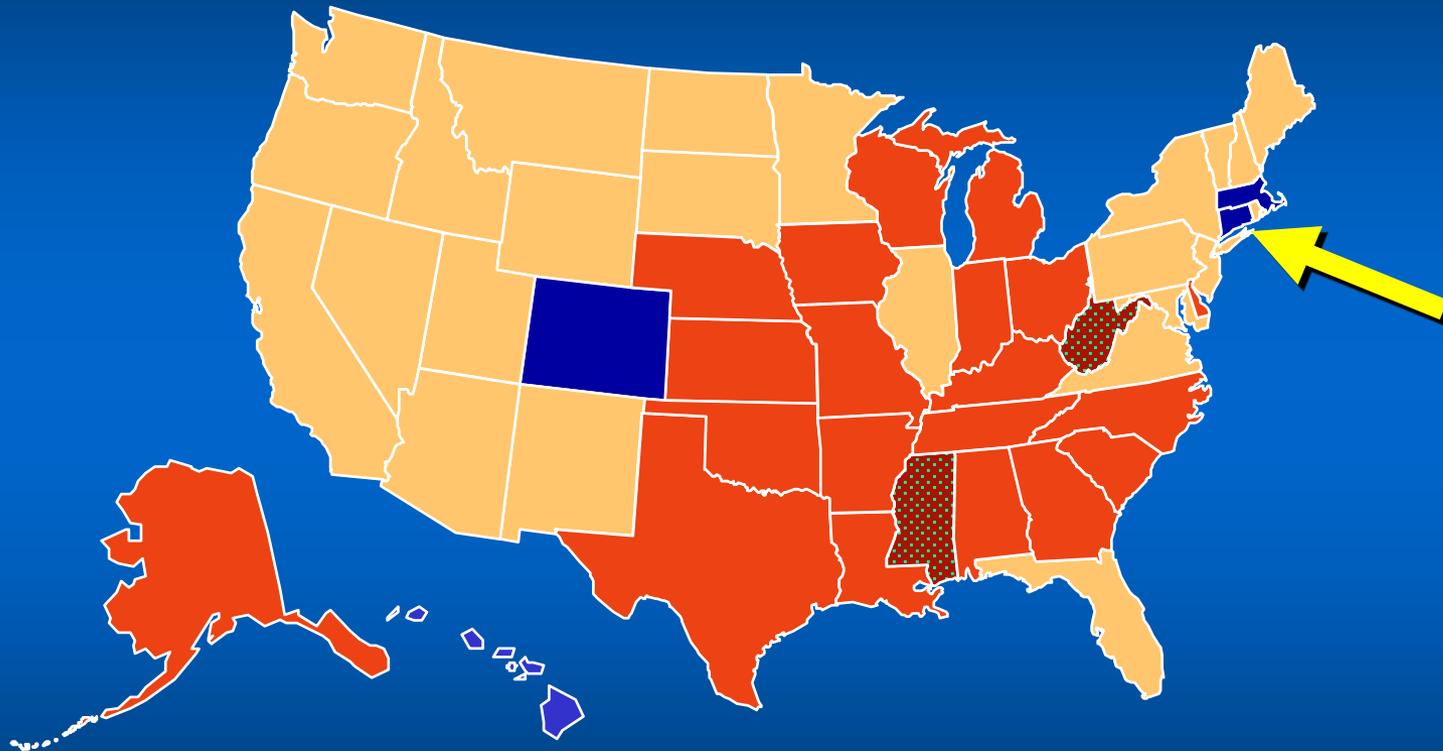
Legend: No Data, <10%, 10%–14%, 15%–19%, 20%–24%, 25%–29%, $\geq 30\%$

Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System (BRFSS). <http://www.cdc.gov/obesity/data/trends.html>

Obesity Trends* Among U.S. Adults

BRFSS, 2006

(*BMI ≥ 30 , or about 30 pounds overweight for 5' 4" person)



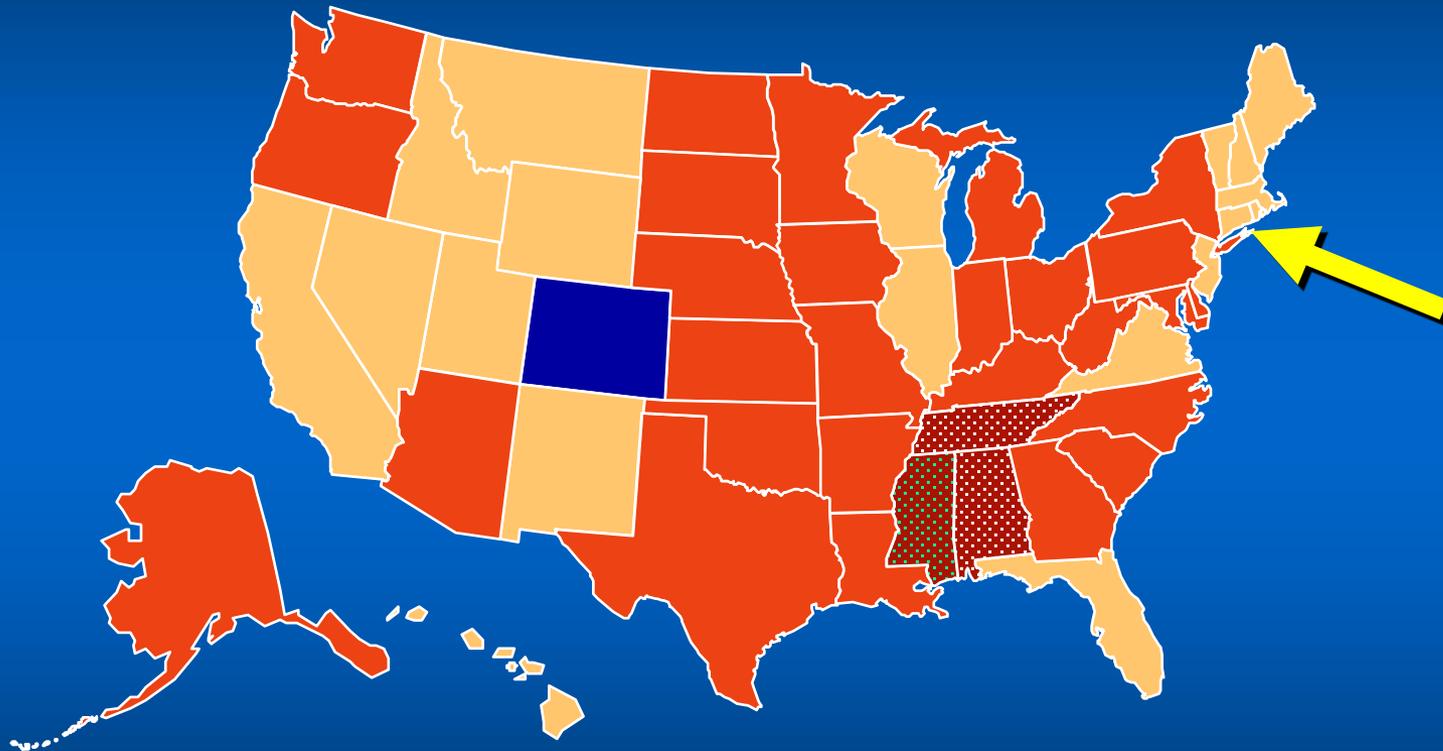
Legend: No Data, <10%, 10%–14%, 15%–19%, 20%–24%, 25%–29%, $\geq 30\%$

Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System (BRFSS). <http://www.cdc.gov/obesity/data/trends.html>

Obesity Trends* Among U.S. Adults

BRFSS, 2007

(*BMI ≥ 30 , or about 30 pounds overweight for 5' 4" person)



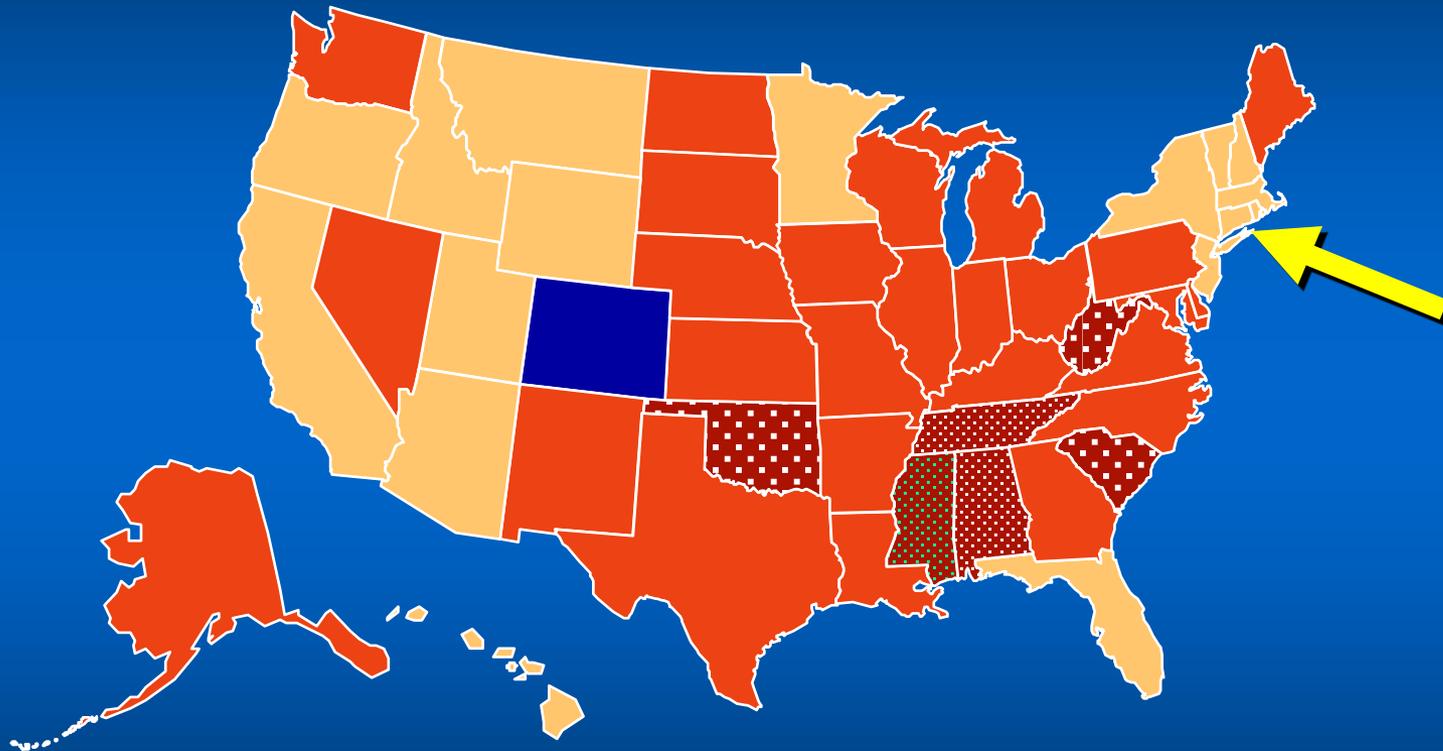
No Data <10% 10%–14% 15%–19% 20%–24% 25%–29% $\geq 30\%$

Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System (BRFSS). <http://www.cdc.gov/obesity/data/trends.html>

Obesity Trends* Among U.S. Adults

BRFSS, 2008

(*BMI ≥ 30 , or about 30 pounds overweight for 5' 4" person)

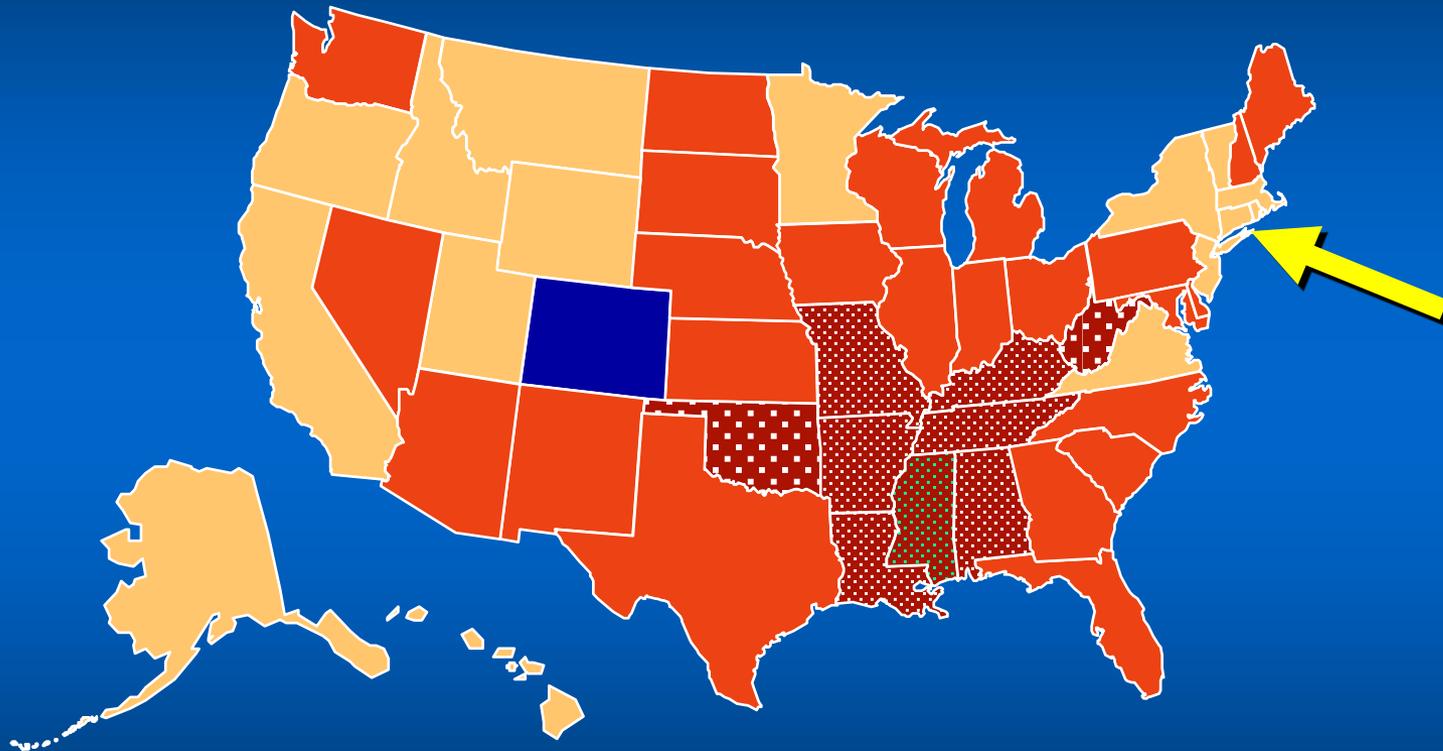


Centers for Disease Control and Prevention. Behavioral Risk Factor Surveillance System (BRFSS). <http://www.cdc.gov/obesity/data/trends.html>

Obesity Trends* Among U.S. Adults

BRFSS, 2009

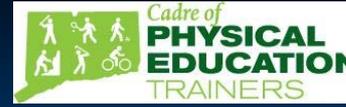
(*BMI ≥ 30 , or about 30 pounds overweight for 5' 4" person)



Legend: No Data, <10%, 10%–14%, 15%–19%, 20%–24%, 25%–29%, $\geq 30\%$



Healthy ConneCTions! Annual Physical Activity and Nutrition Symposium



Physical Fitness Assessment



Summer Food Service Program
Seamless Summer Food Program



School Breakfast Program



Team Nutrition Grants



Child and Adult Care Food Program



Afterschool Snack Program

Coordinated School Health Leadership Project

Coordinated School Health Interagency Workgroup



At-Risk Afterschool Meals

State Board Position Statement on Nutrition and Physical Activity



Annual Health Education Curriculum Development Institutes



State Board Position Statement on Coordinated School Health



Special Milk Program

Healthy Food Certification

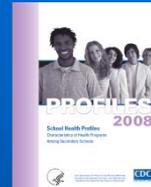


Connecticut Breakfast Expansion Team

Coordinated School Health E-Bulletins

Connecticut Nutrition Standards for Food in Schools

Creating a Healthy Child Care Environment Workshops



Connecticut Child Care Nutrition Standards

Promoting School Wellness Policies

Annual Physical Education Curriculum Development Institutes

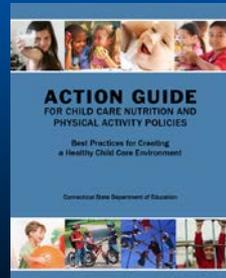
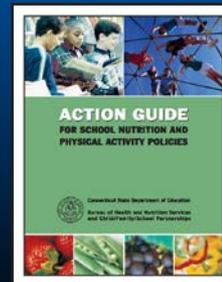
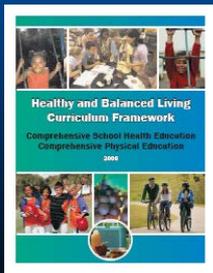


CT Grown for CT Kids Week

Annual Statewide School Health Education & Physical Education Coordinators' Meetings

Physical Activity Toolkits for Schools and Communities Workshops

Wellness Policy in Action School Visits



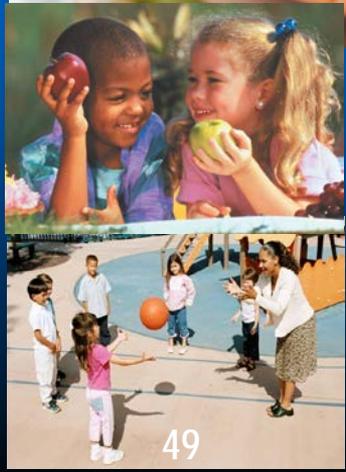
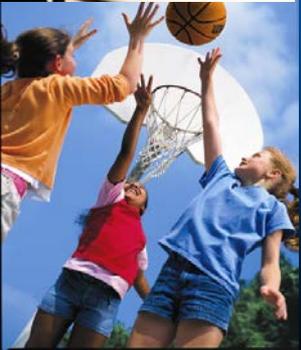
USDA Child Nutrition Programs

- Approximately \$115 million annually in federal funding
 - ▶ National School Lunch Program
 - ▶ School Breakfast Program
 - ▶ Summer Food Service Program
 - ▶ Special Milk Program
 - ▶ Child and Adult Care Food Program
 - ▶ Fresh Fruit and Vegetable Program
- Requirements set at federal level
- State conducts compliance reviews
- State criteria exceed federal requirements
- Almost \$8 million annually in state funding
 - ▶ State match for the National School Lunch Program
 - ▶ School Breakfast Program
 - ▶ Healthy Food Certification



Snapshot of CSDE Nutrition and Physical Activity Programs

- Healthy Food Certification
- School Breakfast
- Fresh Fruit and Vegetable Program
- Farm to School
- Physically Active Learning
- Promoting Nutrition and Physical Activity in Child Care



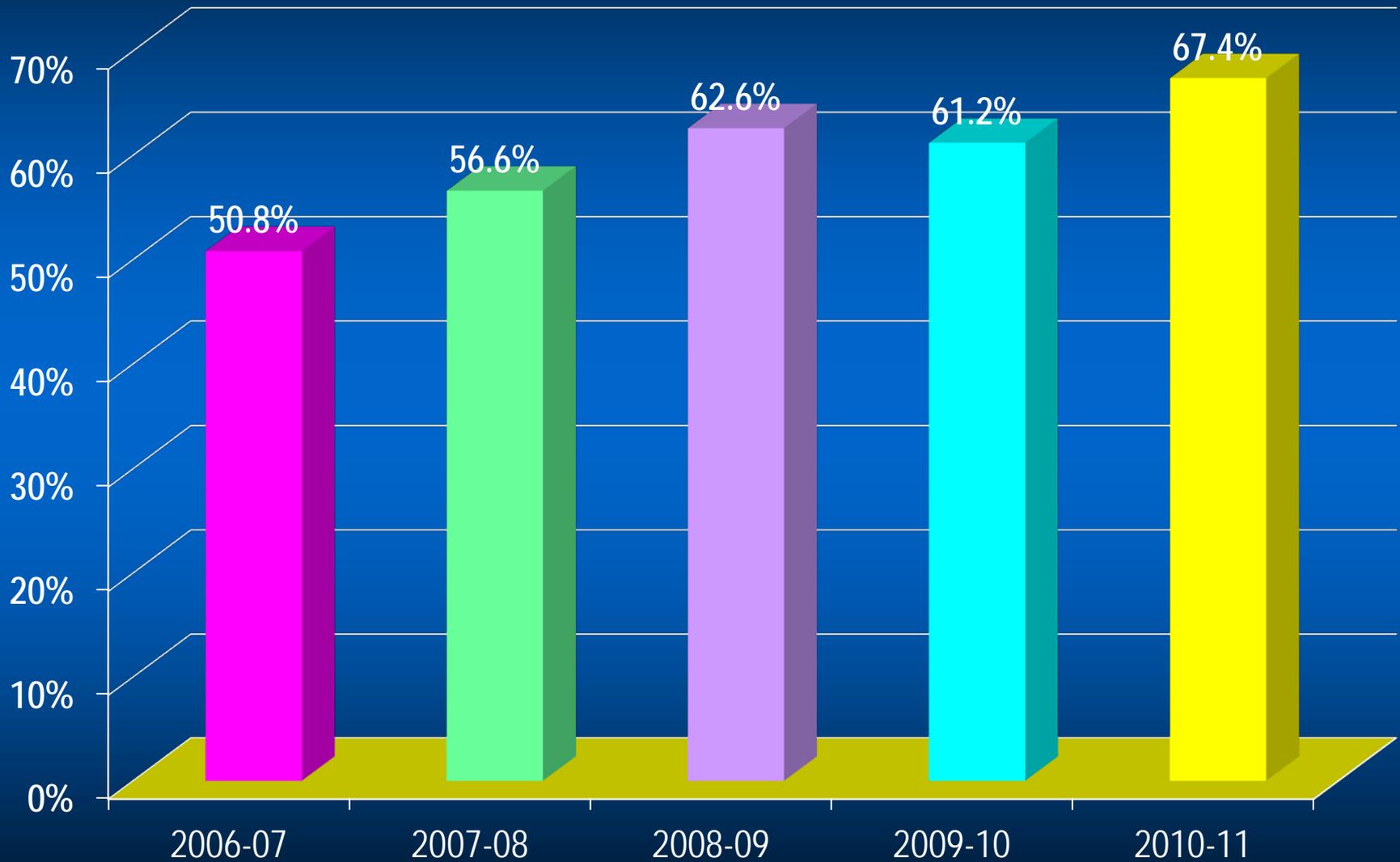
2010-11 Healthy Food Certification (HFC)

- 124 school districts/schools
- 67.4 percent of eligible districts/schools
- 13 new districts/schools
- 100 percent recertification rate
- 10 percent increase from 2009-10

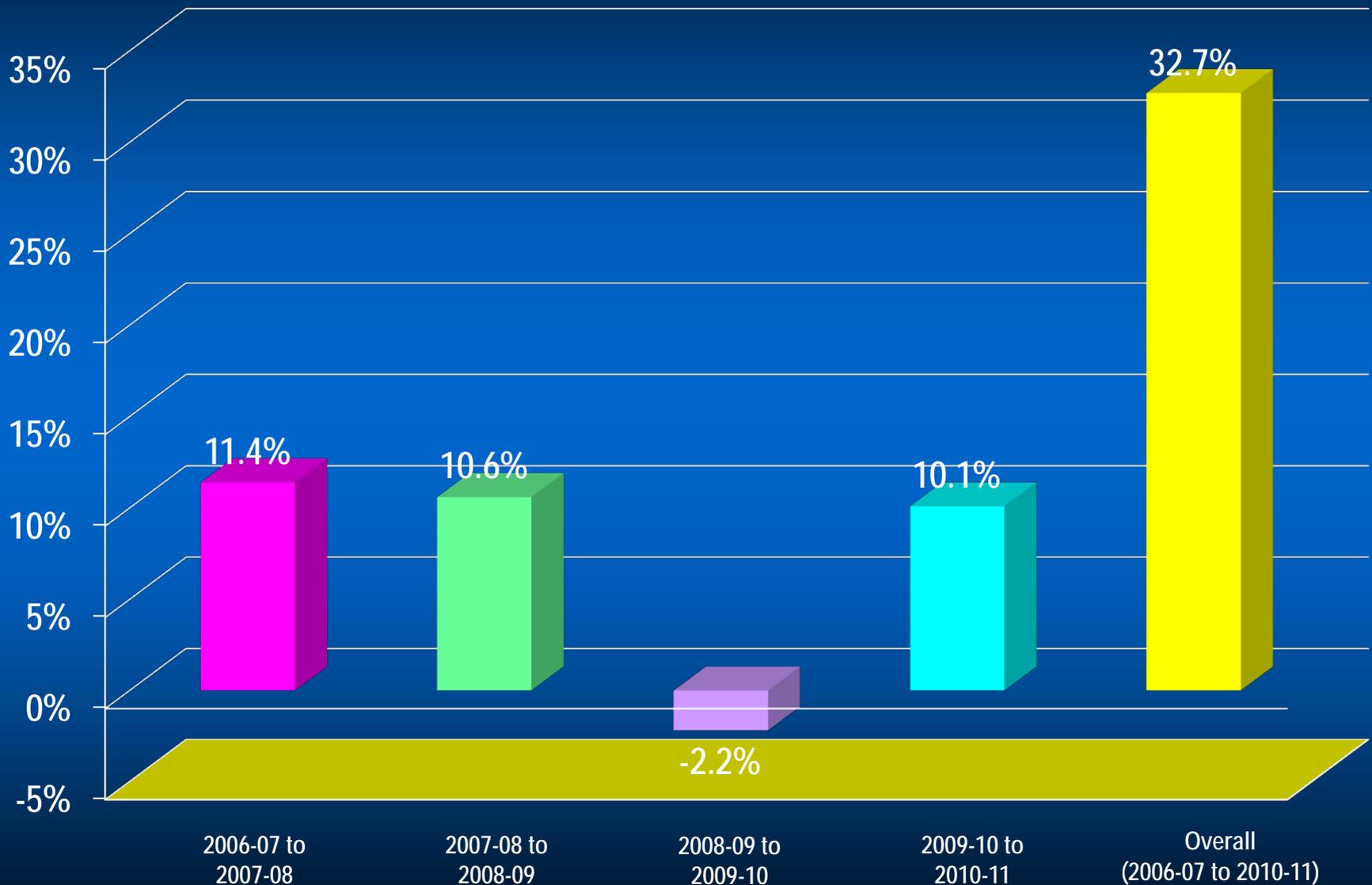


Healthy Food Certification: <http://www.sde.ct.gov/sde/cwp/view.asp?a=2626&q=322420>

HFC Participation To Date



Percentage Change in HFC Participation To Date



School Breakfast Program (SBP)

- Since July 2006, state SBP competitive grant funds up to 10 severe need schools each year to establish SBPs in the classroom
(Section 10-215g of the Connecticut General Statutes)
- The CSDE's **Connecticut Breakfast Expansion Team (CBET)** recruits new schools and promotes SBP participation
- From 2007 to 2010, participating SBP schools increased by almost 12 percent and participating students increased by 23 percent
- Connecticut still lags behind the nation when comparing the number of National School Lunch Program schools that also participate in SBP



Fresh Fruit and Vegetable Program

- Annual grant through the U.S. Department of Agriculture (USDA)
- Schools with 50 percent or more of students eligible for free or reduced-price meals can apply
- Provides fresh fruits and vegetables free of charge to all children throughout the school day, separately from school meals
- Requires nutrition education
- 73 sites received funds for 2010-11



Farm to School Program



- Implemented by the Connecticut Department of Agriculture in partnership with other state agencies such as the CSDE
- Connects schools (preK-12) and local farms with the objectives of
 - ▶ serving **healthy meals** in school cafeterias
 - ▶ improving student **nutrition**
 - ▶ providing **agriculture, health and nutrition education** opportunities
 - ▶ supporting **local and regional** farmers
- Currently 89 school districts participate

www.ct.gov/doag/cwp/view.asp?a=2225&q=299424



Physically Active Learning

Physically Active Schools

- Implementing school wellness plans
- Making schools physically active places for students and staff
- Promoting schoolwide physical activity events, e.g., field days, fitness breaks, walking initiatives

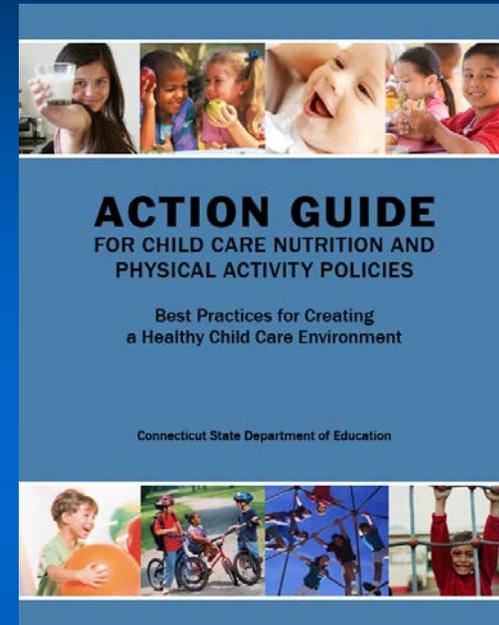
Physically Active Learning

- Integrating physical education and physical activity throughout all subjects
- Providing *Physical Education Cadre of Trainers* professional development programs for schools
- Improving physical education curricula and instruction to encourage lifetime physical activity and fitness, e.g., *Healthy and Balanced Living Curriculum Framework*



Promoting Nutrition and Physical Activity in Child Care

- Helps child care programs and communities encourage healthy lifestyles in children by developing and implementing comprehensive nutrition and physical activity policies
- Addresses policy recommendations, rationale, implementation strategies and resources for six policy components
 - ▶ Nutrition Standards
 - ▶ Eating Environment
 - ▶ Nutrition Education
 - ▶ Physical Activity
 - ▶ Communication and Promotion
 - ▶ Evaluation



CSDE, June 2010

Outcomes and Measures

All Connecticut children have access to

- healthy foods throughout the entire school or child care environment
 - ▶ number of districts that participate in HFC
 - ▶ correlation of HFC to increased meal participation in the NSLP
 - ▶ average daily attendance in CACFP sites
 - ▶ total number of meals served in CACFP sites
 - ▶ number of CACFP sites that implement state nutrition standards
- a healthy breakfast at school
 - ▶ number of students participating in the SBP
 - ▶ number of schools participating in the SBP
- a physically active learning environment
 - ▶ percentage of students meeting state physical fitness standards
 - ▶ number of schools meeting national standards for physical education
- an environment that consistently promotes health and learning
 - ▶ number of districts and child care sites with strong wellness policies



Recommended State Board Actions

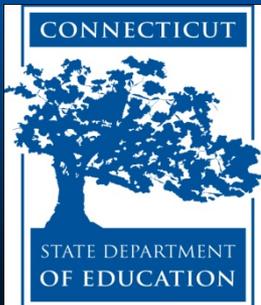
- Embed nutrition and physical activity policy recommendations in the Five-Year Comprehensive Plan for Education 2012-2016
- Consider recommendations to include health, nutrition and physical activity in all school improvement plans developed under Section 10-223 of the Connecticut General Statutes
- Support policy strategies to improve nutrition and physical activity in all Connecticut schools, such as legislative proposals to strengthen school wellness policies
- Support strategies for statewide data collection to correlate health and achievement



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