

## The State of the American Diet and Public Health: Obesity and Physical Activity

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Centers for Disease Control and Prevention  
National Center for Health Statistics



### Objectives

- Overview of sources of data on diet, nutritional status, and health
- NHANES objectives and history as a source of data
- Selected findings: Overweight and obesity
- Selected findings: Physical activity
- Final comments

There are numerous surveys and surveillance systems throughout the Federal government that provide information on the state of the American diet and public health.

### Examples of Data Systems (CDC)

- National Health and Nutrition Examination Survey (NHANES)
- National Health Interview Survey (NHIS)
- Behavioral Risk Factor Surveillance System (BRFSS)
- Youth Risk Behavioral Surveillance System (BRFSS)

### NHANES

#### Objective

To assess the health and nutritional status of adults and children in the United States

### NHANES Mobile Exam Center (MEC)



## Goals of NHANES

U.S. population-based estimates of:

- Health conditions
- Awareness, treatment and control of selected diseases
- Environmental exposures
- Nutrition status and diet behaviors

## National Health and Nutrition Examination Surveys

Survey	Dates	Ages
NHES I	1959–62	18–79 years
NHES II	1963–65	6–11 years
NHES III	1966–70	12–17 years
NHANES I	1971–75	1–74 years
NHANES II	1976–80	6 mo.–74 years
HHANES	1982–84	6 mo.–74 years
NHANES III	1988–94	2 mo. +

## National Health and Nutrition Examination Surveys

Survey	Dates	Ages
NHANES	1999–2000	All ages
NHANES	2001–2002	All ages
NHANES	2003–2004	All ages
NHANES	2005–2006	All ages
NHANES	2007–2008	All ages
NHANES	2009–2010	All ages
NHANES	2011–2012	All ages

## NHANES is a Major Collaboration Between Federal Agencies

- CDC
- NIH
- USDA
- EPA
- FDA



## What We Eat in America, NHANES



ARS/USDA and  
NCHS/CDC

Since 2002



## Survey Integration Responsibilities

- DHHS – sample design and survey operation
- USDA -- dietary methodology, data processing, nutrient values of food
- DHHS and USDA – data collection and data quality and jointly release dietary data

## NHANES Topics

- Cardiovascular disease
- Diabetes
- Bone status, osteoporosis
- Oral health
- Vision and eye diseases
- Hearing and balance
- Physical activity, CV fitness and strength
- Allergies

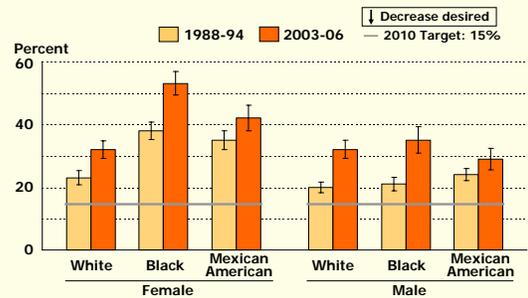
## NHANES Topics (cont'd)

- Nutrition/Diet
- Anthropometry
- Mental health
- Risk behaviors
- Reproductive health
- Environmental exposures
- Infectious diseases
- Spirometry (lung function)

## Nutrition and Overweight

- Diet is associated with
  - heart disease
  - stroke
  - some cancers
  - type 2 diabetes
  - overweight and obesity
  - osteoporosis
- Diet-related conditions contribute to
  - reduced quality of life
  - premature death
  - substantial medical costs
  - lost productivity

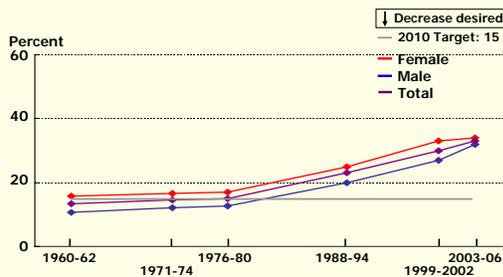
## Adult Obesity



Note: I = 95% confidence interval. Data are for ages 20 years and over, and age adjusted to the 2000 standard population. Obesity is defined as BMI  $\geq 30.0$ . Respondents were asked to select only one race prior to 1999. For 1999 and later years, respondents were asked to select one or more races. For all years, the categories black and white include persons who reported only one racial group and exclude persons of Hispanic origin. Persons of Mexican-American origin may be any race. Source: National Health and Nutrition Examination Survey, NCHS, CDC.

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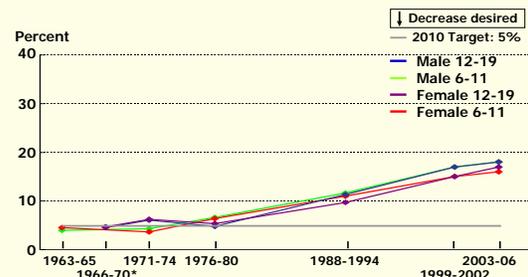
## Trends in Adult Obesity



Note: Data are for ages 20 years and over, and age adjusted to the 2000 standard population. Obesity is defined as BMI  $\geq 30.0$ . Source: National Health Examination Survey, National Health and Nutrition Examination Surveys I, II, III and National Health and Nutrition Examination Survey, NCHS, CDC.

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## Child and Adolescent BMI $\geq 95$ %



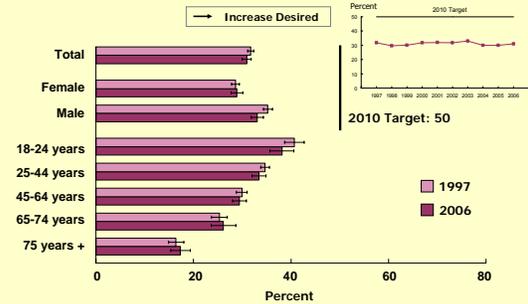
\*Data for 1966-70 are for adolescents 12-17 years of age. Note: BMI  $\geq 95$  percentile and age-specific 95th percentile from the 2000 CDC Growth Charts for the United States. Source: National Health Examination Surveys II (ages 6-11) and III (ages 12-17), National Health and Nutrition Examination Surveys I, II, III and National Health and Nutrition Examination Survey, NCHS, CDC.

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## Physical Activity and Fitness Benefits

- Decreases the risk of obesity and chronic diseases, including osteoporosis
- Better control of body weight, blood pressure, blood glucose, and cholesterol
- Improved mood and feelings of well-being
- Enhances independent living among older adults
- Improves quality of life for people of all ages

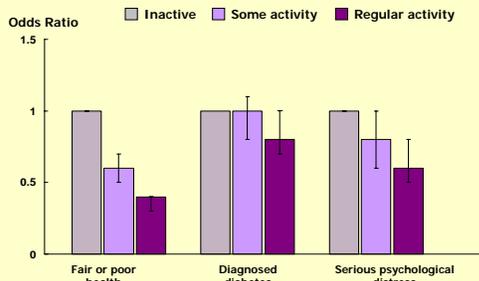
## Regular Leisure Time Physical Activity Among Adults



Note: Except for age-specific estimates, data are for adults 18 years and over and are age adjusted to the 2000 standard population. Regular leisure-time physical activity is a moderate or vigorous physical activity (moderate activity 30+ minutes/5+ times per week or vigorous activity 20+ minutes/3+ times per week). I = 95% confidence interval. Source: National Health Interview Survey (NHIS), NCHS, CDC.

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## Likelihood of Selected Health Problems by Leisure Time Physical Activity Level, 2006



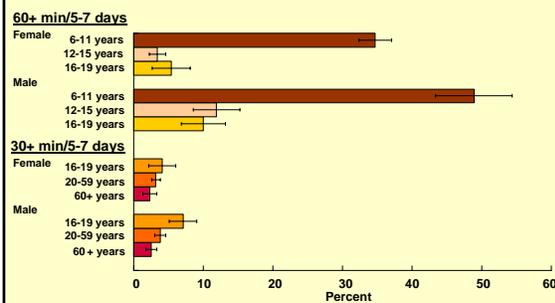
Note: Data are for adults 18 years and older. Odds ratios are adjusted for sex, age, race/ethnicity, educational, and poverty status. Data are age adjusted to the 2000 standard population. Inactive is no moderate or vigorous physical activity; some activity is physical activity less than the regular activity. Regular activity is a moderate (30+ min/5+ times per week) or vigorous activity (20+ min/3+ times per week) or both. Serious psychological distress includes negative moods during the past 30 days: sad, nervous, restless, hopeless, feeling everything is an effort, and worthless. I = 95% confidence interval. Source: National Health Interview Survey (NHIS), NCHS, CDC.

## Physical Activity Measure by Accelerometer

- Physical activity monitor component of NHANES 2003-06
- Measures intensity and duration of common activities such as walking and running
- Has a pedometer (step-counter) feature
- Worn over the right hip on an elasticized belt for 7 days
- More than 12,000 persons 6+ years wore accelerometers.
- Results may be linked to interview, health (BMI, functional status, bone status, blood pressure, etc.), and laboratory data.



## Recommended Levels of Physical Activity



Note: Adherence: for ages 6-19 years - 60 or more minutes of moderate- or greater-intensity activity on 5 of 7 days; for ages 16 years and older - 30 or more minutes of moderate- or greater-intensity activity on 5 of 7 days, accumulated in 10-min " bouts. I = 95% confidence interval. Source: Troiano, RP, et al. Physical Activity in the United States Measured by Accelerometer. Medicine & Science in Sports & Exercise. 2008, 40(1): 181-188. National Health and Nutrition Examination Survey (NHANES), NCHS, CDC.

## Methodological Issues

- Time / intensity
- Recall period / accuracy
- Number of questions and order
- "Leisure" / "work" / "incidental"
- Self-report versus measured
- No standard methodology
- Changes in measurement over time

### Final Comments

- Extensive (and recent) data and publications available on diet, obesity and physical activity
- Much more to come since NHANES 2005-2006 data fairly recently available
- More to be presented today and in future meetings of this committee



<http://www.cdc.gov/nchs/nhanes.htm>

Thank You !

*Questions?*