

## Behaviors and Behavioral Determinants Related to Physical Activity and Nutrition—National Youth Physical Activity and Nutrition Study, United States, 2010

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### Presenter Disclosures

Kathryn Foti

- (1) The following personal financial relationships with commercial interests relevant to this presentation existed during the past 12 months:

No relationships to disclose

### Background

- ❑ Since 1980, the prevalence of obesity among children and adolescents has tripled
- ❑ Healthy eating and regular physical activity can help prevent obesity
- ❑ National data related to physical activity and nutrition behaviors and behavioral determinants among high school students are needed to help develop effective school-based obesity prevention programs

### National Youth Physical Activity and Nutrition Study (NYPANS)

- ❑ Conducted by the Centers for Disease Control and Prevention (CDC) in spring 2010
- ❑ Purposes
  - Provide nationally representative data on behaviors and behavioral determinants related to physical activity and nutrition
  - Provide data to help improve the quality of Youth Risk Behavior Survey questions
  - Understand associations among behaviors and behavioral determinants related to PA and nutrition and their association with body mass index

## METHODS

### Sample

- ❑ Three-stage cluster sample design
- ❑ Nationally representative sample of public- and private-school students in grades 9-12
- ❑ Oversampled African-American and Hispanic students
- ❑ Response rates
  - School = 82%
  - Student = 89%
  - Overall (school x student) = 73%
- ❑ After editing, n = 11,429 students

### Measures

- ❑ 120-item questionnaire to measure behaviors and behavioral determinants
- ❑ Standardized protocol to measure height and weight
- ❑ Telephone interviews to measure 24-hour dietary recall among a subsample of students (n = 909)

### Procedures

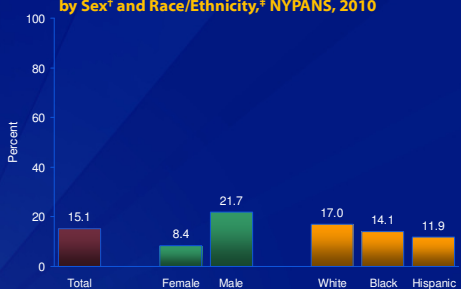
- ❑ Obtained parental permission using local procedures
- ❑ Administered questionnaires in classrooms during a regular class period
- ❑ Questionnaires were anonymous and self-administered
- ❑ Students recorded responses on a computer-scannable booklet

### Analysis

- ❑ Data were weighted to provide national estimates
- ❑ SUDAAN was used to take into account complex sample design when calculating prevalence estimates and 95% confidence intervals
- ❑ T-tests were used to calculate subgroup differences

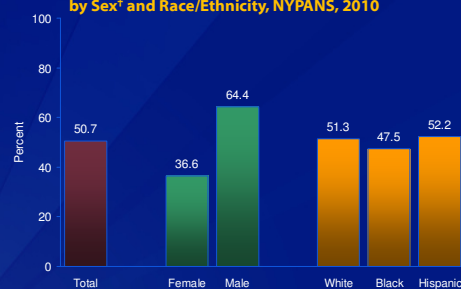
## RESULTS: PHYSICAL ACTIVITY

Percentage of High School Students Who Were Physically Active at Least 60 Minutes/Day on All 7 Days,\* by Sex<sup>†</sup> and Race/Ethnicity,<sup>‡</sup> NYPANS, 2010



\*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 at least 60 minutes/day on all 7 days during the 7 days before the survey.  
<sup>†</sup>M > F  
<sup>‡</sup>W > B, H

Percentage of High School Students Who Did Exercises to Strengthen or Tone their Muscles on 3 or More of the Past 7 Days,\* by Sex<sup>†</sup> and Race/Ethnicity,<sup>‡</sup> NYPANS, 2010

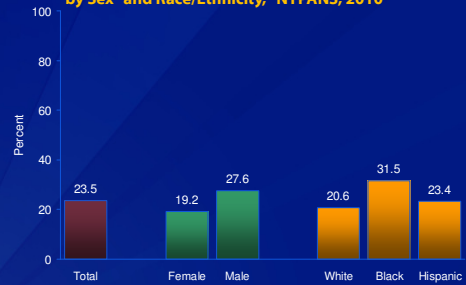


\*Such as push-ups, sit-ups, or weight-lifting.  
<sup>†</sup>M > F

**Percentage of High School Students Who Participated in Physical Activities, NYPANS, 2010**

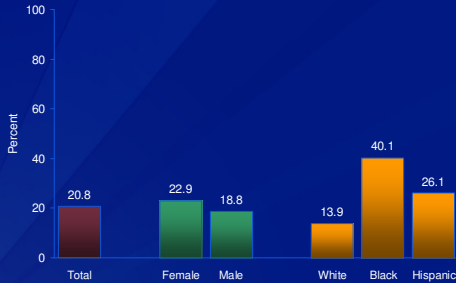
Activity	Past 12 months	Past 7 days
Top 5		
Walking	83.9	79.9
Running/jogging	78.2	69.3
Active video games (Wii, DDR)	63.0	39.5
Basketball	57.9	43.5
Weightlifting	55.0	43.9
Bottom 5		
Cheerleading	7.9	5.6
Marching band	6.8	2.7
Lacrosse	6.4	3.6
Surfing	5.6	2.3
Ice hockey	5.0	2.4

**Percentage of High School Students Who Played Video or Computer Games or Used a Computer for 3 or More Hours/Day,\* by Sex<sup>†</sup> and Race/Ethnicity,<sup>‡</sup> NYPANS, 2010**



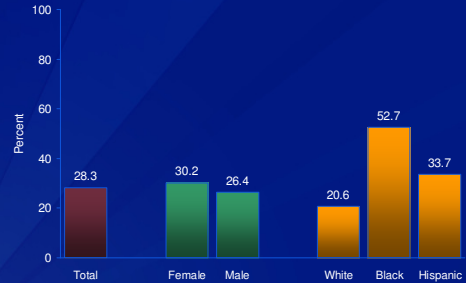
\*For something that was not school work on an average school day.  
<sup>†</sup> M > F  
<sup>‡</sup> B > W, H

**Percentage of High School Students Who Watched DVDs or Videos for 3 or More Hours/Day,\* by Sex<sup>†</sup> and Race/Ethnicity,<sup>‡</sup> NYPANS, 2010**



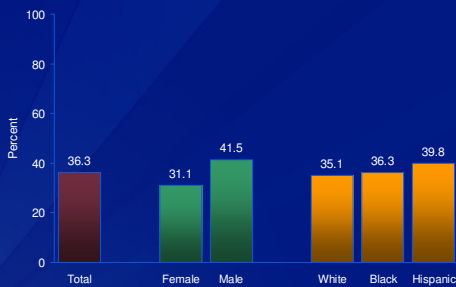
\*On an average school day.  
<sup>†</sup> F > M  
<sup>‡</sup> B > H > W

**Percentage of High School Students Who Watched TV for 3 or More Hours/Day,\* by Sex<sup>†</sup> and Race/Ethnicity,<sup>‡</sup> NYPANS, 2010**



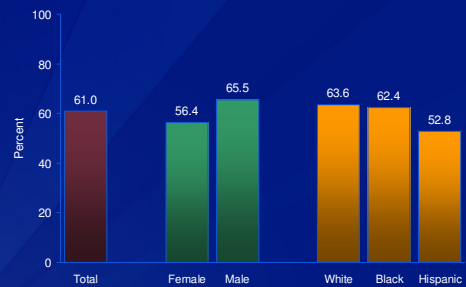
\*On an average school day.  
<sup>†</sup> F > M  
<sup>‡</sup> B > H > W

**Percentage of High School Students Who Attended Physical Education Classes Daily,\* by Sex<sup>†</sup> and Race/Ethnicity,<sup>‡</sup> NYPANS, 2010**



\*In an average week when they were in school.  
<sup>†</sup> M > F

**Percentage of High School Students Who Played on One or More Sports Teams,\* by Sex<sup>†</sup> and Race/Ethnicity,<sup>‡</sup> NYPANS, 2010**



\*During the past 12 months.  
<sup>†</sup> M > F  
<sup>‡</sup> B, W > H

### Attitudes Toward Physical Activity Among High School Students, NYPANS, 2010

When I am physically active...	% Agree or Strongly Agree
I enjoy it.	82.5
I find it fun.	78.1
It gives me energy.	75.6
My body feels good.	78.2
It gives me a strong feeling of success.	77.6

Note: M > F for all variables.

### Environmental Support for Physical Activity Among High School Students, NYPANS, 2010

Statement	% Agree or Strongly Agree
At home there are enough pieces of sports equipment* to use for physical activity.	70.7 <sup>†</sup>
There are playgrounds, parks, or gyms close to my home that are easy for me to get to.	68.4
It is safe to be physically active by myself in my neighborhood.	73.5 <sup>†</sup>

\*Such as balls, bicycles, and skates.  
<sup>†</sup>M > F and W > B, H

### Parental Support for Physical Activity Among High School Students, NYPANS, 2010

During a typical week, how often does an adult in your household...	% 1 or More Times Per Week
Encourage you to do physical activities or play sports?	73.9 <sup>*</sup>
Do a physical activity or play sports with you?	48.5 <sup>*</sup>
Provide transportation to a place where you can do physical activities or play sports?	67.8
Watch you participate in physical activities or sports?	61.8 <sup>*</sup>

<sup>\*</sup>H > B  
<sup>†</sup>M > F and W > B, H

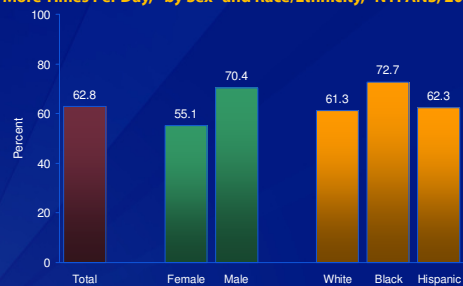
## RESULTS: NUTRITION AND DIETARY BEHAVIORS

### Percentage of High School Students Who Drank a Can, Bottle, or Glass of Selected Beverages One or More Times Per Day,\* NYPANS, 2010

Type of beverage	% of students
Water	72.4
Milk	42.0
100% fruit juice	30.2
Soda or pop	24.3
Sports drink	16.1
Other sugar-sweetened beverage	16.9
Coffee, coffee drink, or tea	14.8
Diet soda or diet pop	7.1
Energy drink	5.0

\*During the 7 days before the survey.

### Percentage of High School Students Who Drank Any Combination of Soda or Pop, Sports Drinks, or Other Sugar-Sweetened Beverages One or More Times Per Day,\* by Sex<sup>†</sup> and Race/Ethnicity,<sup>‡</sup> NYPANS, 2010

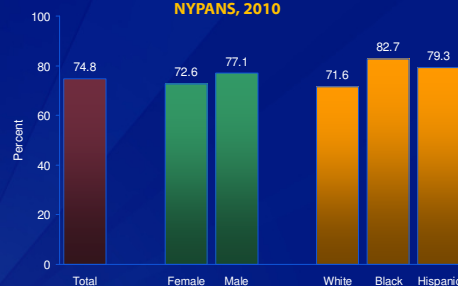


\* During the 7 days before the survey.  
<sup>†</sup>M > F  
<sup>‡</sup>B > W, H

**Percentage of High School Students Who Ate Selected Foods Each Day, NYPANS, 2010**

Type of food	% of students
French fries or other fried potatoes (1+ times)	9.5
Pizza (1+ times)	7.1
Fruit or 100% fruit juices (2+ times)	41.0
Vegetables (3+ times)	18.5

**Percentage of High School Students Who Ate At Least One Meal or Snack From a Fast Food Restaurant,\* by Sex<sup>†</sup> and Race/Ethnicity,<sup>‡</sup> NYPANS, 2010**



\* Such as McDonald's, Taco Bell, or KFC, during the 7 days before the survey.  
<sup>†</sup> M > F  
<sup>‡</sup> B > H > W

**Environmental Influences (Home) on Dietary Behavior Among High School Students, NYPANS, 2010**

	% of students
Usually ate dinner at home on school days	88.8
Always or most of the time have a television on while they are eating dinner at home	41.0
Ate dinner at home with at least one of their parents or guardians on all of the past 7 days	36.9
Always or most of the time have fruits or vegetables to snack on in their home	69.3
Always or most of the time have foods such as chips, cookies, or cakes to snack on in their home	49.1

**Environmental Influences (School) on Dietary Behavior Among High School Students, NYPANS, 2010**

	% of students
When they eat lunch at school, usually get the food they eat from somewhere at school	64.3
When they get lunch at school, usually get a complete school lunch from the school cafeteria	49.9
Eat all or part of a complete school lunch on 5 days*	38.6
Bring their own lunch to school from home on 5 days*	14.8
School has a vending machine students can use to purchase soda or pop, sports drinks, or fruit drinks <sup>†</sup>	71.8
School has a vending machine students can use to purchase snacks <sup>‡</sup>	62.9
School has a vending machine students can use to purchase fruits or vegetables (including dried fruit)	7.8

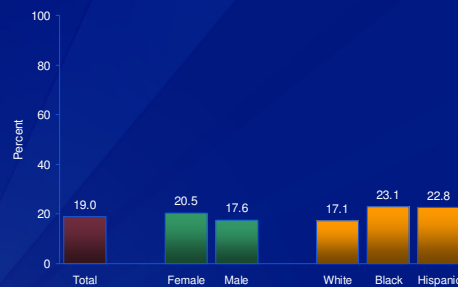
\* In an average week.  
<sup>†</sup> Filled are not 100% juice.  
<sup>‡</sup> Such as chips, cookies, crackers, cakes, pastries, chocolate candy, or other kinds of candy.

**Percentage of High School Students Who Were Overweight,\* by Sex and Race/Ethnicity, NYPANS, 2010**

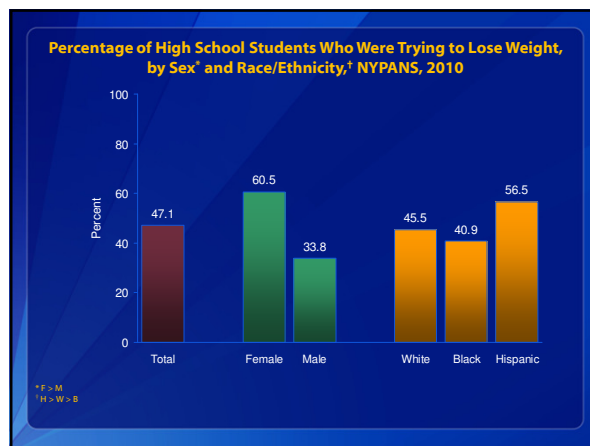
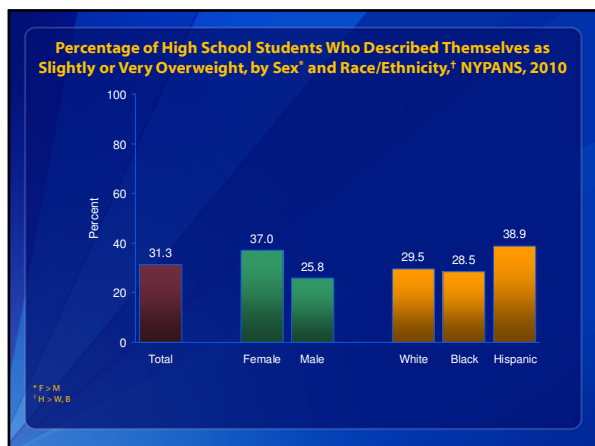


\* Students who were ≥ 85<sup>th</sup> percentile but < 95<sup>th</sup> percentile for body mass index, by age and sex, based on reference data.

**Percentage of High School Students Who Were Obese\* by Sex<sup>†</sup> and Race/Ethnicity,<sup>‡</sup> NYPANS, 2010**



\* Students who were ≥ 95<sup>th</sup> percentile for body mass index, by age and sex, based on reference data.  
<sup>†</sup> M > F  
<sup>‡</sup> B, H > W



### Weight Control Practices Among High School Students, NYPANS, 2010

Practice	% of students
Exercised*	58.4
Ate less food, fewer calories, or foods low in fat*	39.4
Ate fewer calories*	32.8
Ate more fruits and vegetables*	34.5
Drank more water*	41.2
Skipped meals*	22.1
Went without eating for 24 hours or more*	8.4
Smoked cigarettes*	5.2
Took any diet pills, powders, or liquids without a doctor's advice*	4.6
Vomited or took laxatives*	3.6

\*To lose weight or to keep from gaining weight during the past 30 days.

## SUMMARY AND CONCLUSIONS

- ### Sex Differences in Physical Activity and Nutrition
- **Male students more likely than female to students to:**
    - Be physically active for 60+ minutes/day on all 7 days
    - Engage in strengthening exercises
    - Play on 1+ sports teams
    - Attend physical education class daily
    - Have environmental support for physical activity
    - Have more positive attitudes toward physical activity and PE
    - Play video or computer games for 3+ hours daily
    - Drink any combination of sugar drinks 1+ times/day
    - Eat fast food 1+ times/week

- ### Sex Differences in Physical Activity and Nutrition
- **Female students more likely than male students to:**
    - Watch DVDs or videos 3+ hours/day
    - Watch TV 3+ hours/day
    - Be obese
    - Describe themselves as overweight
    - Report trying to lose weight
    - Engage in healthy weight control practices

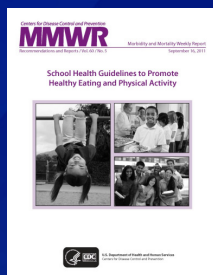
### Racial/Ethnic Differences in Physical Activity and Nutrition

- ❑ **White students more likely than black and Hispanic students to:**
  - Be physically active for 60+ minutes/day on all 7 days
  - Have environmental support for physical activity
- ❑ **Black students more likely than white and Hispanic students to:**
  - Play video or computer games for 3+ hours/day
  - Watch DVDs or videos 3+ hours/day
  - Watch TV 3+ hours/day
  - Drink any combination of sugar drinks 1+ times/day
  - Eat fast food 1+ times/week

### Behavioral Determinants

- ❑ **High school students:**
  - Have generally positive attitudes toward physical activity and physical education
  - Have good environmental and parental support for physical activity
  - Have somewhat supportive home environments for healthy eating
  - Have many opportunities to eat and drink at school

### School Health Guidelines to Promote Healthy Eating and Physical Activity



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- ❑ **Establish school environments that support healthy eating and physical activity.**
- ❑ **Provide a quality school meal program and ensure that students have only appealing, healthy food and beverage choices offered outside the school meal program.**
- ❑ **Implement a comprehensive physical activity program with quality physical education as the cornerstone.**

### Future NYPANS Work

- ❑ **Study exploring validity of fruit and vegetable questions**
- ❑ **Study exploring validity of beverage questions**
- ❑ **Studies examining association between behaviors and behavioral determinants**
- ❑ **Studies examining association between body mass index and behaviors/behavioral determinants**

### Questions?

[www.cdc.gov/healthyyouth](http://www.cdc.gov/healthyyouth)  
[htk7@cdc.gov](mailto:htk7@cdc.gov)

For more information please contact Centers for Disease Control and Prevention

1600 Clifton Road NE, Atlanta, GA 30333  
 Telephone: 1-800-CDC-INFO (232-4636)/TTY: 1-888-232-6348  
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The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

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