

DELAWARE SURVEY OF CHILDREN'S HEALTH

Prevalence of Obesity and Weight-Related Health Behaviors Among Delaware Children



The Delaware Survey of Children's Health (DSCH), sponsored by Nemours Children's Health System (Nemours), is one of the most comprehensive health surveillance instruments for Delaware children, with results from more than 2,600 households with children ages birth through 17 in 2014. Administered in 2006, 2008, 2011 and 2014, the DSCH provides valuable data on multiple aspects of children's health that can be used to inform data-driven decisions to improve children's health.¹

This brief discusses the findings related to the prevalence of obesity as well as health behaviors related to weight status among children in Delaware, ages 2-17.* All reported differences across time or by demographic group are statistically significant unless otherwise noted. This brief focuses on obesity, rather than both overweight and obesity, as statistically significant findings only emerged when the two weight categories were analyzed separately. Additionally, recent research asserts that childhood obesity is a stronger predictor of poor health outcomes than childhood overweight.²

In the 2014 administration of the DSCH, there was a change in the survey methodology.[†] Due to the methodology change, direct comparisons cannot be made between 2006 or 2008 and 2014 data. A statistical process was applied to adjust the 2011 data to enable comparisons between 2011 and 2014 data for many survey items.[‡] All comparisons between 2011 and 2014 data in this brief utilize 2011 adjusted data.

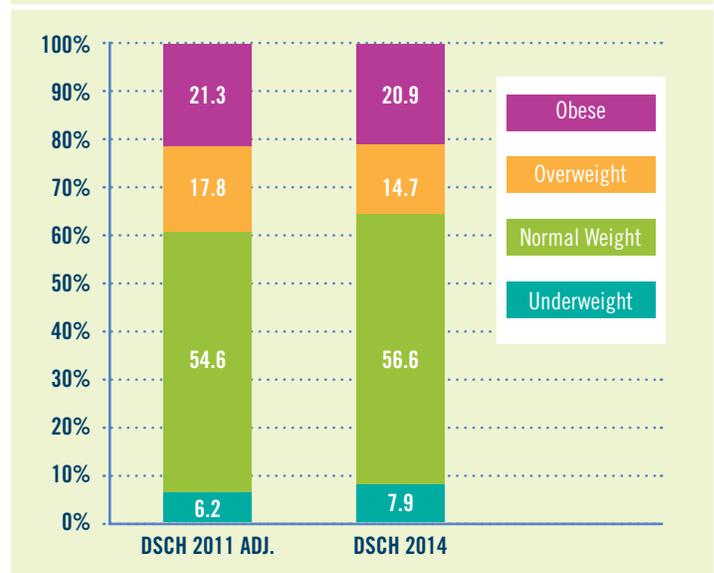
* Height and weight were validated by data from health care providers. Almost 58 percent of parents who participated in the survey gave permission to contact the health care provider to obtain provider reported height and weight data. Data were collected from 72 percent of the providers, which resulted in provider-reported height and weight data for 1,178 children (44 percent of all children in survey).

† In the 2006, 2008 and 2011 administrations, the DSCH sampled from a frame of landline phone numbers only. Therefore, cell-phone-only households had zero probability of selection. The 2014 DSCH expanded to a dual frame sampling of landline and cell phone numbers as well as Address-Based Sampling.

‡ A question was added into DSCH 2014 to ask the respondents if they had a cell phone in 2011. Those who answered that they had a cell-phone-only in 2011 were used to adjust (impute) the missing cell-phone-only respondents for DSCH 2011.

§ Obesity is defined as body mass index (BMI) equal to or above the 95th percentile of BMI-for-age.

WEIGHT STATUS OF DELAWARE CHILDREN



Data Brief #2 2017

Key Findings From the 2014 Delaware Survey of Children's Health

Twenty-one percent of Delaware children, ages 2-17, were obese in 2014.[§] The prevalence of obesity decreased from 2011; although, the difference between 2011 (21.3 percent) and 2014 (20.9 percent) was not statistically significant (Figure 1). However, there were significant changes in the demographics of obesity from 2011 to 2014.

- Obesity decreased among Hispanic females, ages 2-17;
- Obesity decreased among males, ages 6-11, overall.

Survey results show encouraging changes in the lifestyles of Delaware children. Between 2011 and 2014, the prevalence of engaging in moderate-to-vigorous physical activity for 60 or more minutes per day increased and the prevalence of limiting sugar-sweetened beverage consumption to two or less cups per week improved. Weight status was associated with lifestyle behaviors, including healthy eating and time spent using electronic devices.

Disparities Remain Among Specific Subgroups in Delaware

In 2014, the prevalence of obesity differed by location, gender, race/ethnicity and age; however, none of those differences were statistically significant.

LOCATION

Sussex County had the highest prevalence of obesity (23.8 percent), followed by Kent County (21.7 percent), New Castle County excluding the City of Wilmington (20.0 percent) and the City of Wilmington (17.4 percent).

GENDER

The prevalence of obesity was higher for males (22.8 percent) than for females (18.8 percent).

RACE/ETHNICITY

Hispanic children had the highest prevalence of obesity (26.0 percent, +/- 10.0 percent), followed by non-Hispanic Black children (21.8 percent) and non-Hispanic White children (19.4 percent).

AGE

Adolescents, ages 12-17 (18.5 percent) had the lowest prevalence of obesity compared to children, ages 2-5 (22.2 percent) and children, ages 6-11 (22.2 percent).

When children were grouped by two or more demographic characteristics (e.g., age and gender), some statistically significant disparities in obesity were found (Figure 2). The prevalence of obesity among the following groups exceeds 30 percent: Hispanic males, ages 2-5 and 6-11; non-Hispanic Black females, ages 6-11; and non-Hispanic

White males, ages 2-5. However, please use caution when citing the prevalence of obesity in subgroups related to Hispanic children or children at certain age groups, given the larger margins of error.¹¹

HISPANIC CHILDREN, AGES 2-5 AND 6-11, BY GENDER

The obesity prevalence was higher for Hispanic males than Hispanic females, for ages 2-5 (46.6 percent, +/- 36.2 percent vs. 5.7 percent, +/- 6.5 percent) and ages 6-11 (56.6 percent, +/- 20.5 percent vs. 15.6 percent, +/- 14.1 percent).

NON-HISPANIC BLACK CHILDREN, AGES 6-11, BY GENDER

The obesity prevalence was higher for non-Hispanic Black females ages 6-11 (32.7 percent, +/- 19.7 percent) compared to non-Hispanic Black males of the same age group (11.3 percent, +/- 7.0 percent).

NON-HISPANIC WHITE CHILDREN, AGES 2-5, BY GENDER

The obesity prevalence was higher for non-Hispanic White males, ages 2-5 (41.1 percent, +/- 16.2 percent) compared to non-Hispanic White females of the same age group (11.3 percent, +/- 9.9 percent).

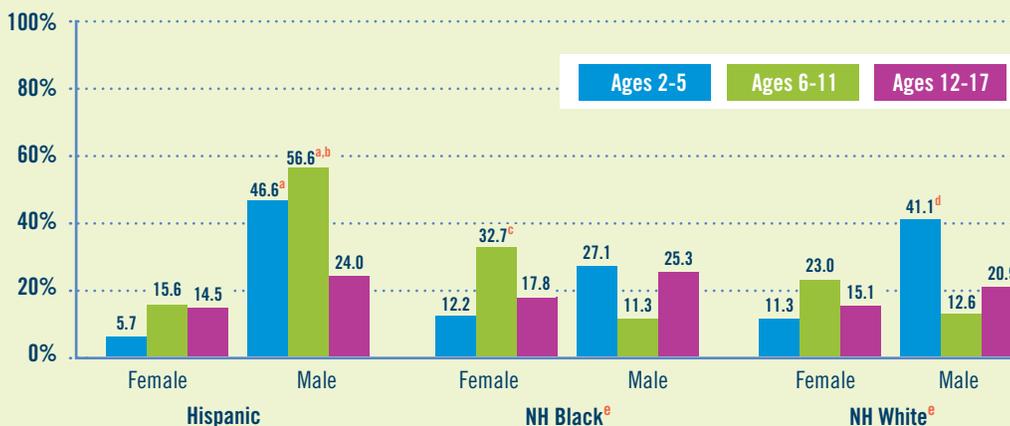
NON-HISPANIC WHITE MALES BY AGE

Among non-Hispanic White males, the prevalence of obesity was the highest for children ages 2-5 (41.1 percent, +/- 16.2 percent), followed by adolescents, ages 12-17 (20.9 percent, +/- 8.6 percent) and children, ages 6-11 (12.6 percent, +/- 7.1 percent).

MALES, AGES 6-11, BY RACE/ETHNICITY

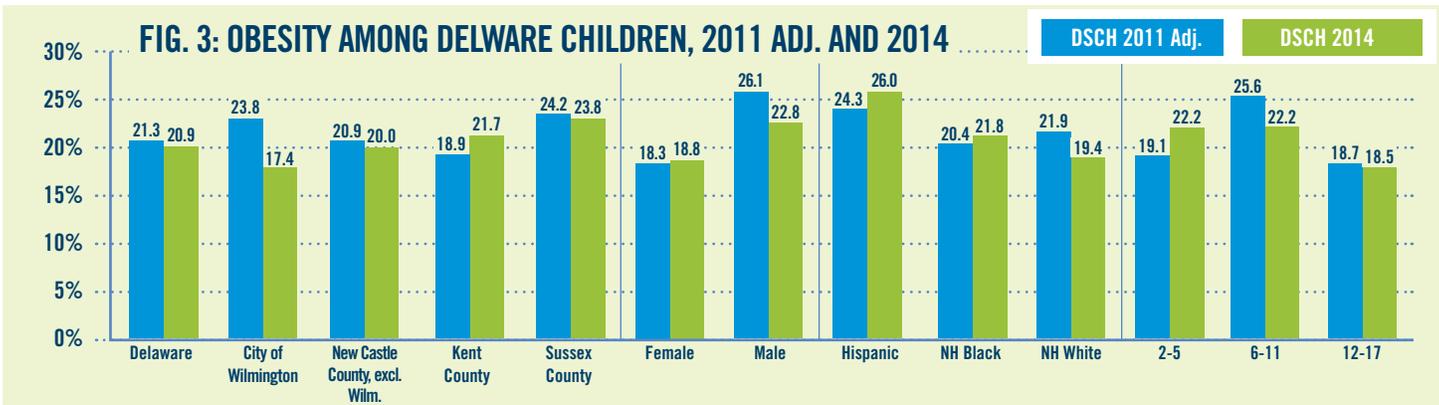
Hispanic males, ages 6-11, had the highest rate of obesity (56.6 percent, +/- 20.5 percent) compared to non-Hispanic White males (12.6 percent, +/- 7.1 percent) and non-Hispanic Black males (11.3 percent, +/- 7.0 percent).

FIG. 2: OBESITY – RACE/ETHNICITY BY GENDER BY AGE, 2014



- a. Significantly different from Hispanic females of the same age group.
- b. Significantly different from non-Hispanic Black males, age 6-11, and non-Hispanic White males, age 6-11.
- c. Significantly different from non-Hispanic Black males, age 6-11.
- d. Significantly different from non-Hispanic White males, age 6-11 and age 12-17.
- e. Note: NH indicates non-Hispanic.

¹¹ For example, the prevalence of obesity among Hispanic males, ages 6-11, noted as "56.6 percent, +/- 20.5 percent" means that the margin of error is 20.5 percent and the 95 percent confidence interval is 36.1 percent to 77.1 percent.



Demographic Changes in Obesity Since 2011

Although the prevalence of obesity for Delaware children decreased slightly from 21.3 percent in 2011 to 20.9 percent in 2014, this decrease was not statistically significant (Figure 3). Additionally, there were no statistically significant changes between the two time periods in the prevalence of obesity observed by location, gender, racial/ethnic groups or age groups (Figure 3).

However, when analyzing changes in obesity over time by two or more demographic characteristics, the following statistically significant decreases were observed:

- Obesity **decreased** among Hispanic females, ages 2-17; and
- Obesity **decreased** among males, ages 6-11, overall.

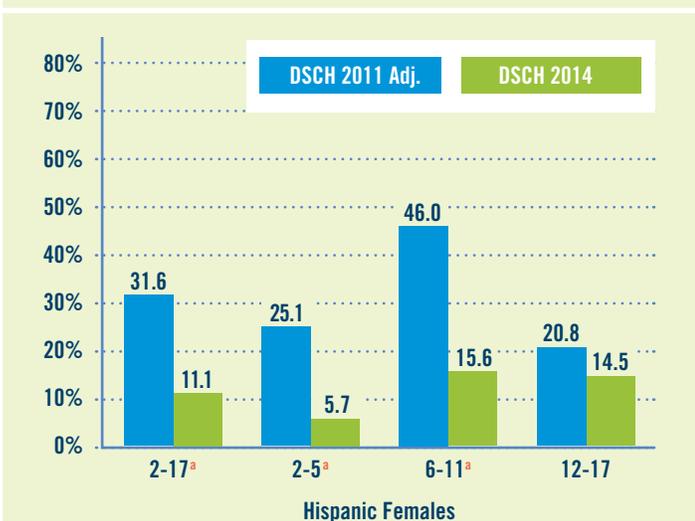
HISPANIC FEMALES

The obesity prevalence among Hispanic females decreased from 2011 (31.6 percent, +/- 8.8 percent) to 2014 (11.1 percent, +/- 6.7 percent). Hispanic females, ages 2-11, were the major contributors to this decrease (Figure 4).^{¶, #}

MALES, AGES 6-11

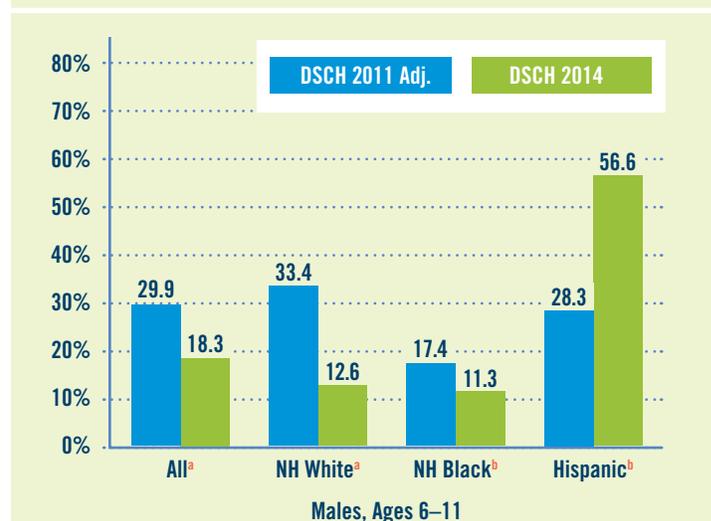
The obesity prevalence among males, ages 6-11, decreased from 2011 (29.9 percent, +/- 6.6 percent) to 2014 (18.3 percent, +/- 6.9 percent). The major force for this change was the decrease among non-Hispanic White males from 2011 (33.4 percent, +/- 9.1 percent) to 2014 (12.6 percent, +/- 7.1 percent), along with a decrease among non-Hispanic Black males, ages 6-11, from 2011 (17.4 percent, +/- 7.4 percent) to 2014 (11.3 percent, +/- 7.0 percent).^{**} Notably, Hispanic males, ages 6-11, experienced an increase in the rate of obesity from 2011 (28.3 percent, +/- 16.0 percent) to 2014 (56.6 percent, +/- 20.5 percent) (Figure 5).^{**}

FIG. 4: OBESITY AMONG HISPANIC FEMALES, 2011 ADJ. AND 2014



Note: ^a Indicates a statistical significance with p-value <.05

FIG. 5: OBESITY PREVALENCE AMONG MALES, AGES 6-11, 2011 ADJ. AND 2014



Note: ^a Indicates a statistical significance with p-value <.05

^b Indicates a marginal statistical significance with .05 ≤ p-value <.10

¶ For Hispanic Females, ages 2-5, there is a margin of error of +/- 14.5 percent in 2011 and a margin of error of +/- 6.5 percent in 2014.

For Hispanic Females, ages 6-11, there is a margin of error of +/- 14.7 percent in 2011 and a margin of error of +/- 14.1 percent in 2014.

** The changes for non-Hispanic Black males ages, 6-11, and Hispanic males, ages 6-11, are marginally significant (p<.10).

Health Behaviors in 2014

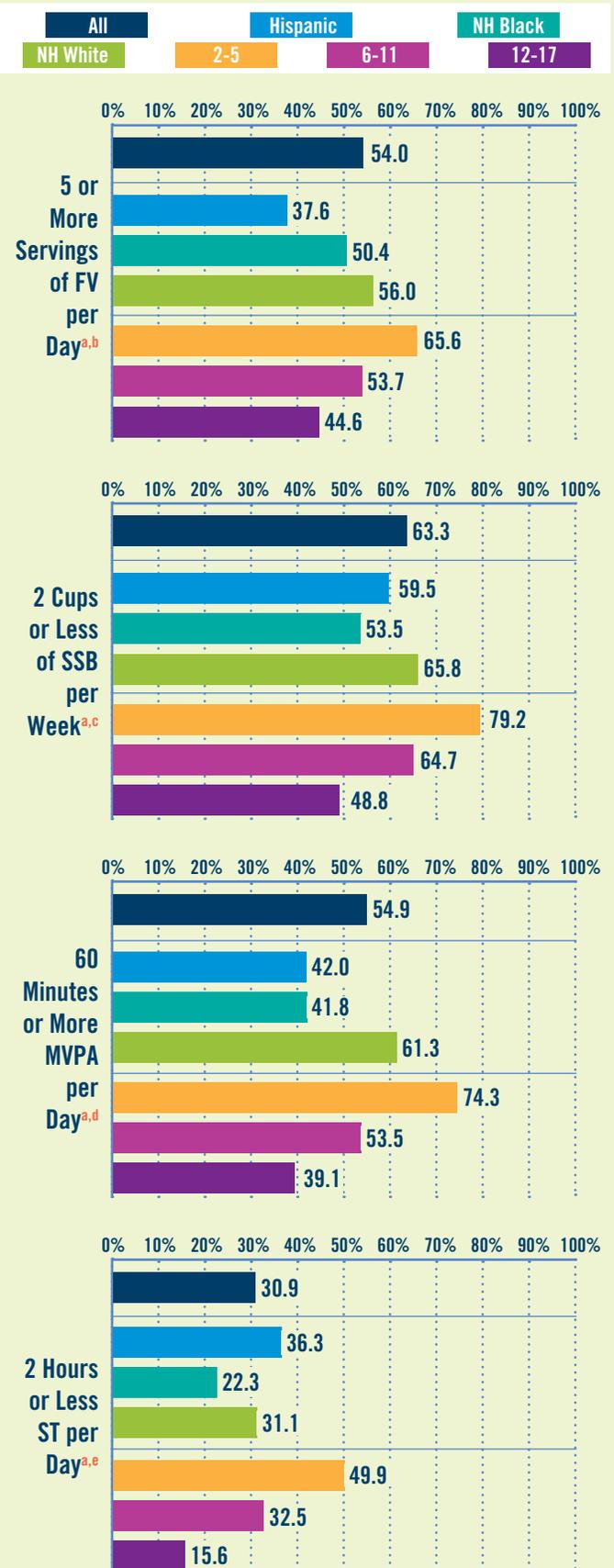
Healthy lifestyle habits, such as eating fruits and vegetables, engaging in sufficient physical activity, and limiting recreational screen time can help to lower a child's risk of becoming overweight or obese.^{3,4} DSCH data show both encouraging and concerning findings related to these behaviors, particularly for specific groups.

In 2014, fruit and vegetable consumption, sugar-sweetened beverage consumption, engagement in moderate-to-vigorous physical activity and screen time varied by both racial/ethnic group as well as age group (Figure 6).



- a. Children ages 2-5 performed best and children ages 12-17 performed worst for all four health behaviors.
- b. NH White and NH Black children were more likely to consume five or more servings of FV per day than Hispanic children.
- c. NH White children were more likely to consume two or less cups of SSB per week than NH Black children.
- d. NH White children were more likely to engage in 60 or more minutes of MVPA per day than NH Black and Hispanic children.
- e. Both Hispanic and NH White children were more likely to engage in two hours or less ST per day than NH Black children.

FIG. 6: HEALTH BEHAVIORS BY RACE/ETHNICITY AND AGE, 2014



Changes in Health Behaviors From 2011 to 2014

FRUIT AND VEGETABLE CONSUMPTION. More Delaware children were eating five or more servings of fruits and vegetables a day in 2014 (54.0 percent) than in 2011 (50.4 percent). Although this increase was promising, it was not statistically significant. Notable increases did occur in two locations in Delaware: the City of Wilmington (44.0 percent to 54.0 percent)^{††} and Sussex County (53.8 percent to 61.3 percent).^{††} Additionally, a decrease in fruit and vegetable consumption between 2011 and 2014 was observed among Hispanic males, ages 6-11 (67.9 percent to 34.1 percent), and Hispanic females, ages 12-17 (41.4 percent to 20.9 percent).

SUGAR-SWEETENED BEVERAGE CONSUMPTION.

The prevalence of Delaware children who limited consumption of sugar-sweetened beverages (SSB) to two cups or less improved from 2011 (57.2 percent) to 2014 (63.3 percent). A sharp improvement in limiting SSB occurred among children living in the City of Wilmington, where 50.6 percent consumed two cups or less of SSB per week in 2011 and 61.3 percent did so in 2014.

PHYSICAL ACTIVITY. Delaware children were more physically active in 2014 than they were in 2011. In 2014, 54.9 percent of children engaged in 60 or more minutes of moderate-to-vigorous physical activity (MVPA) per day, up from 47.0 percent in 2011. The greatest improvement was observed in New Castle County excluding the City of Wilmington, increasing from 45.6 percent in 2011 to 55.6 percent in 2014. Additionally, more non-Hispanic White males, ages 6-11, engaged in 60 or more minutes of MVPA per day in 2014 (65.1 percent) as compared to 2011 (42.7 percent).

SCREEN TIME. The definition for screen time changed between 2011 and 2014; therefore, statistical analysis cannot be applied to detect a significant change over time. In 2014, screen time was defined as time spent using an electronic device with a screen such as a TV, DVD, video game player, computer, tablet, iPad, or smart phone for non-school related activities. In 2014, more than two-thirds (69.1 percent) of Delaware children spent over two hours daily on electronic devices for non-school related activities.

Association Between Weight Status and Health Behaviors

The 2014 survey results indicate weight status was associated with related health behaviors for children in Delaware.

Children with a BMI classified as **obese** were less likely to:

- eat five or more fruits and vegetables daily (46.2 percent) compared to children with a BMI classified as **normal weight** (59.8 percent) or **underweight** (61.8 percent);
- limit SSB consumption to two cups or less per week (55.2 percent) compared to children with a BMI classified as **normal weight** (65.2 percent) or **underweight** (72.7 percent).^{††}

Additionally, children with a BMI classified as **obese** spent more time using electronic devices:

- on weekdays (260.5 minutes) than children with a BMI classified as **normal weight** (221.8 minutes);
- on weekend days (183.3 minutes) than children with a BMI classified as **normal weight** (134.6 minutes) or **underweight** (133.1 minutes).^{††}

Racial/Ethnic Disparities in Context

Childhood obesity remains a serious epidemic in the United States, affecting 17 percent or approximately 12.7 million children and adolescents, ages 2-19.⁵ In Delaware, approximately one in five Delaware children, ages 2-17, were obese in 2014. While there was no statistically significant change in the overall prevalence of obesity for Delaware children from 2011 to 2014, the data revealed a statistically significant decrease in obesity among Hispanic females, ages 2-11, and non-Hispanic White males, ages 6-11.

National data indicates there are some disparities among different racial/ethnic groups. Nationally, Hispanics and non-Hispanic Blacks had higher prevalence of childhood obesity compared to non-Hispanic Whites. The same national pattern is not present in Delaware. While Hispanic children in Delaware had the highest prevalence of obesity, there was no statistically significant difference in obesity prevalence by racial/ethnic group.

Although we cannot fully explain what caused the non-significant decrease in weight status for the entire children's population in Delaware or what caused the decreases in weight status among the sub-populations from 2011 to 2014, we have seen some health behavior changes from the data. Delaware children are engaging in more physical activity and consuming fewer sugar-sweetened beverages. Among Hispanic males, ages 6-11, obesity prevalence increased while their fruit and vegetable consumption decreased. Among non-hispanic White males, ages 6-11, obesity prevalence decreased while their physical activity increased and SSB consumption decreased.



Summary

This data brief focuses on obesity and individual weight-related behaviors. Numerous factors influence weight status, including individual diet and physical activity behaviors. Psychosocial, cultural, environmental, biological and genetic factors also influence weight.⁶ Over the past decade, numerous stakeholders, including Nemours, have made strategic efforts to prevent obesity by introducing programs and implementing policy changes. In light of these efforts, weight status among Delaware children overall continues to stay the same.

Nemours and partners across Delaware continue to work to improve the health status of all children and to support healthy behaviors. Continued data collection is necessary to monitor trends among Delaware children and to identify opportunities to reduce both overweight and obesity among specific groups of children that remain at risk.

To make it easier to view and understand the data, Nemours created an online Datacenter, which enables analysis of the DSCH data by location, age group and racial/ethnic group. The Datacenter offers a variety of options for visualizing and downloading the DSCH data to inform program development, guide children's health initiatives and/or monitor health indicators. To learn more about the DSCH, visit <http://datacenter.nemours.org/>. Nemours hopes that by administering the DSCH and publicizing the findings, more data-driven decisions will be made in the field of child health promotion.

References

¹Nemours Children's Health System. NHPS Datacenter. Retrieved October 17, 2016 at <http://datacenter.nemours.org>.

²Pi-Sunyer X. The medical risks of obesity. *Postgraduate Medicine*. 2009;121(6):21–33. DOI:<http://doi.org/10.3810/pgm.2009.11.2074>

³Committee on Prevention of Obesity in Children and Youth. Institute of Medicine. *Preventing childhood obesity: health in balance*. Washington, DC: The National Academies Press; 2005.

⁴Pérez A, Hoelscher D, Springer A, et al. Physical activity, watching television, and the risk of obesity in students, Texas, 2004–2005. *Preventing Chronic Disease*. 2011;8:1-11.

⁵Ogden CL, Carroll MD, Fryar CD, Flegal KM. Prevalence of obesity among adults and youth: United States, 2011–2014. *NCHS data brief, no 219*. Hyattsville, MD: National Center for Health Statistics; 2015.

⁶Wyatt SB, Winters KP, Dubbert PM. Overweight and obesity: prevalence, consequences, and causes of a growing public health problem. *American Journal of the Medical Sciences*. 2006;331(4):166-174.

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