

## What are overweight and obesity?

- Overweight and obesity are conditions that result from excess body fat and/or abnormal body fat distribution.
- For children and adolescents, the amount of body fat is usually estimated by using weight and height to calculate a number called the body mass index (BMI). For a child and teen BMI calculator, visit [cdc.gov/healthyweight/bmi/calculator.html](http://cdc.gov/healthyweight/bmi/calculator.html). BMI is not a direct measure of body fat, but it is a reasonable indicator of the amount of body fat for most children and adolescents.
- Overweight and obesity in children and adolescents are generally defined using an age- and sex-specific percentile for BMI rather than the BMI categories used for adults because children's body composition varies with age and between boys and girls.

After a child or adolescent's BMI has been calculated from his/her weight and height, it is compared to a standard growth chart to determine the percentile in which his/her BMI falls and his/her weight status. Standard growth charts are derived by aggregating the BMI of thousands of children and adolescents according to age and sex. For standard growth charts used by the Centers for Disease Control and Prevention (CDC), visit [www.cdc.gov/growthcharts/cdc\\_charts.htm](http://www.cdc.gov/growthcharts/cdc_charts.htm). Table 1 shows how BMI-for-age and sex percentile is generally used to classify weight status for children and adolescents.

**Table 1. Classification of weight status by BMI-for-age and sex percentile for children and adolescents**

Body Mass Index (BMI)-for-age and sex percentile	Weight Status
Below 5	Underweight
5 to less than 85	Healthy weight
85 to less than 95	Overweight
95 or higher	Obese

Created based on information from [www.cdc.gov/obesity/childhood/basics.html](http://www.cdc.gov/obesity/childhood/basics.html).

## How many children and adolescents are overweight or obese?

- Among North Carolina children ages 2–4 who participate in the Supplemental Nutrition Program for Women, Infants and Children (WIC), the prevalence of overweight and obesity is 31%.<sup>1</sup>
- North Carolina has the 27th highest overweight and obesity rates among children age 10 to 17 in the nation.<sup>2</sup>
- About one in three (31%) high school students in North Carolina are either overweight or obese.<sup>3</sup>



**3 out of 10 children age 10 to 17 in North Carolina are either overweight or obese.**

## What are the complications of obesity?

- Overweight or obesity in children and adolescents increases the risk of several conditions including:
  - Hypertension (high blood pressure).
  - Hyperlipidemia including high cholesterol.
  - Abnormal glucose tolerance including type 2 diabetes.
  - Liver and gallbladder disease, sleep apnea, asthma and other respiratory problems.
  - Joint, muscle and bone problems.
  - Social and psychological problems (e.g., discrimination, poor self-esteem).
- Children and adolescents who are overweight or obese are more likely to become adults who are overweight or obese. For more information about overweight and obesity in adults, visit [communityclinicalconnections.com/Data](http://communityclinicalconnections.com/Data).

## What are the risk factors for overweight and obesity?

- A variety of factors play a role in weight status including genetics, metabolism, medications, some health conditions, environment, behavior, culture and socioeconomic status.
- The two main determinants of overweight and obesity are nutrition and physical activity. The technical cause of overweight and obesity is calorie (energy) imbalance whereby calorie intake is greater than calorie use. How much and what a child or adolescent eats (calorie intake) and the amount of, types and intensity of physical activity he/she participates in (calorie use) can affect weight and overall health. See Table 2.
- Time of onset, duration and exclusivity of breastfeeding, as well as consumption of sugar-sweetened beverages and television viewing and screen time are also important risk factors for overweight and obesity in children and adolescents.
- Environments that lack places for physical activity or have limited access to healthy food options also contribute to overweight and obesity. For example, a child or adolescent's ability to be physically active may be limited because he or she doesn't have access to convenient, safe places to play.
- In certain rare disorders, genes can directly cause overweight and obesity. More commonly however, multiple genes may increase one's susceptibility for overweight or obesity but require outside factors, such as excess calorie intake and/or insufficient physical activity, for overweight or obesity to actually develop.

**Table 2: Some Risk Factors for Overweight and Obesity among Children and Adolescents, North Carolina, 2017<sup>3,4</sup>**

Risk Factor	Child or Adolescent Population	
	Middle School	High School
Did not meet physical activity recommendations	67.3%	77.7%
Spent 3 or more hours per day watching TV	27.2%	23.1%
Spent 3 or more hours per day playing video games or using computer	45.4%	41.6%
Drank soda or pop at least once per day	No data	22.3%
Ate vegetables three or more times per day	No data	12.4%
Ate fruit or drank 100% fruit juice three or more times per day	No data	17.4%

### What options are available to prevent or manage overweight and obesity?

- A balanced, nutritious eating pattern and regular physical activity are the foundation to preventing overweight and obesity. For healthy eating and physical activity guidelines, and strategies to reach and maintain a healthy weight for children and adolescents, see Table 3 and visit:

— [cdc.gov/healthyweight/children](http://cdc.gov/healthyweight/children)  
 — [choosemyplate.gov/kids](http://choosemyplate.gov/kids)  
 — [cdc.gov/physicalactivity/basics/children](http://cdc.gov/physicalactivity/basics/children)  
 — [brightfutures.aap.org](http://brightfutures.aap.org)

- The main objectives for the management of overweight and obesity in children and adolescents should be based on age, weight status and other relevant factors. Goals should be individualized for each child/adolescent and should include a family focus. Goals may include weight maintenance while the child is growing, or gradual and steady weight loss until a healthy weight is achieved, and maintenance of a healthy weight thereafter. For more information, visit the American Academy of Pediatrics–Institute for Healthy Childhood Weight website at [ihcw.aap.org](http://ihcw.aap.org).

- **North Carolina’s Plan to Address Obesity: Healthy Weight and Healthy Communities: 2013–2020<sup>5</sup>** identifies the following core behaviors to address overweight and obesity in children and adolescents:

#### REFERENCES

1. Division of Public Health, Nutrition Services Branch. North Carolina Pediatric Nutrition and Epidemiology Surveillance System (NC-PedNESS). 2016 Report produced upon request, July 03, 2018.
2. Child and Adolescent Health Measurement Initiative. Data Resource Center for Child and Adolescent Health. 2016 National Survey of Children’s Health (NSCH) data query. Accessed at: [www.childhealthdata.org/browse/survey](http://www.childhealthdata.org/browse/survey) on March 29, 2018.
3. Youth Risk Behavioral Survey (High School Survey Results). North Carolina Healthy Schools. Department of Public Instruction and Department of Health and Human Resources. 2017. Accessed at: [cdc.gov/healthyyouth/data/yrbs/pdf/2017/ss6708.pdf](http://cdc.gov/healthyyouth/data/yrbs/pdf/2017/ss6708.pdf) on July 17, 2018.

- Increase physical activity.
- Increase consumption of fruits and vegetables.
- Decrease consumption of sugar-sweetened beverages.
- Reduce consumption of energy-dense foods.
- Decrease television viewing and screen time.
- Increase breastfeeding initiation, duration and exclusivity.

To learn how strategies related to these behaviors can be applied in eight different community settings, please visit [EatSmartMoveMoreNC.com](http://EatSmartMoveMoreNC.com).

- Creating environments that make it easier to engage in physical activity and healthy eating in community, home, child care, school, health care and workplace settings is a proven strategy in controlling overweight and obesity. To learn more about the North Carolina Division of Public Health’s efforts to promote environments that foster physical activity and healthy eating, please visit [communityclinicalconnections.com/What\\_We\\_Do/improve.html](http://communityclinicalconnections.com/What_We_Do/improve.html).
- In some cases, medication and surgical procedures may be needed to complement lifestyle changes for weight loss.
- Children or adolescents on medications or with health conditions that may lead to weight gain should talk to their health care provider about how to best manage their condition and prevent obesity.

**Table 3: Key Physical Activity Guidelines for Children and Adolescents**

Children and adolescents should do 60 minutes or more of physical activity daily.

**Aerobic:** Most of the 60 or more minutes a day should be either moderate- or vigorous-intensity aerobic physical activity, and should include vigorous-intensity physical activity at least 3 days a week.

**Muscle-strengthening:** As part of their 60 or more minutes of daily physical activity, children and adolescents should include muscle-strengthening physical activity on at least 3 days of the week.

**Bone-strengthening:** As part of their 60 or more minutes of daily physical activity, children and adolescents should include bone-strengthening physical activity on at least 3 days of the week.

It is important to encourage young people to participate in physical activities that are appropriate for their age, that are enjoyable and that offer variety.

Source: [www.health.gov/paguidelines/guidelines/chapter3.aspx](http://www.health.gov/paguidelines/guidelines/chapter3.aspx)

4. Youth Risk Behavioral Survey (Middle School Survey Results). North Carolina Healthy Schools. Department of Public Instruction and Department of Health and Human Resources. 2017. Accessed at: [www.nchealthyschools.org/docs/data/yrbs/2017/statewide/middleschool/tables.pdf](http://www.nchealthyschools.org/docs/data/yrbs/2017/statewide/middleschool/tables.pdf) on September 12, 2018.
5. Eat Smart, Move More North Carolina Leadership Team. 2013. North Carolina’s Plan to Address Obesity: Healthy Weight and Healthy Communities 2013–2020. Eat Smart, Move More NC, Raleigh, NC. Available at: [www.EatSmartMoveMoreNC.com](http://www.EatSmartMoveMoreNC.com).

In addition to the above references, this fact sheet was developed with heavy reliance on information from the Centers for Disease Control and Prevention website: [www.cdc.gov/obesity/childhood/index.html](http://www.cdc.gov/obesity/childhood/index.html).