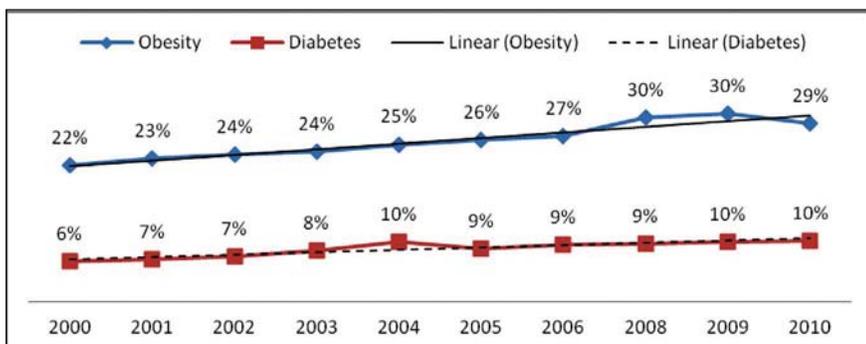


# Overweight, Obesity, and Diabetes

## in North Carolina

**O**verweight, obesity, and diabetes are among the most costly and harmful health problems in North Carolina. Moreover, the rates of overweight, obesity, and diabetes in North Carolina are among the worst in the nation and are increasing at alarming rates.

Figure 1. Prevalence of obesity and diabetes in North Carolina 2000-2010



- North Carolina ranked as the 17th most obese and the 9th most diabetic state in the country in 2012. (1)
- Two-thirds of North Carolina residents, an estimated 6,286,000 individuals, are either overweight or obese (65.1%). (2)
- One-in-10 residents (10.9%) – an estimated 788,000 individuals – has been diagnosed with diabetes in North Carolina. (3) Another 512,000 were estimated to have been diagnosed as prediabetic. (4)

Of particular concern is how certain segments of the population experience these issues at higher rates than others.

- Racial and ethnic minority adults, and those with less education or who make less money, suffer from the highest rates of overweight, obesity, and diabetes. (2) (3)



**Diabetes Mellitus** – often referred to as diabetes – is a condition in which the body either does not produce enough insulin, or does not properly respond to insulin. Insulin, a hormone produced in the pancreas, enables cells to absorb glucose (sugar) in order to turn it into energy. A person with diabetes either does not make enough insulin, or fails to respond to their own insulin, or both. This causes glucose to accumulate in the blood, often leading to various complications.

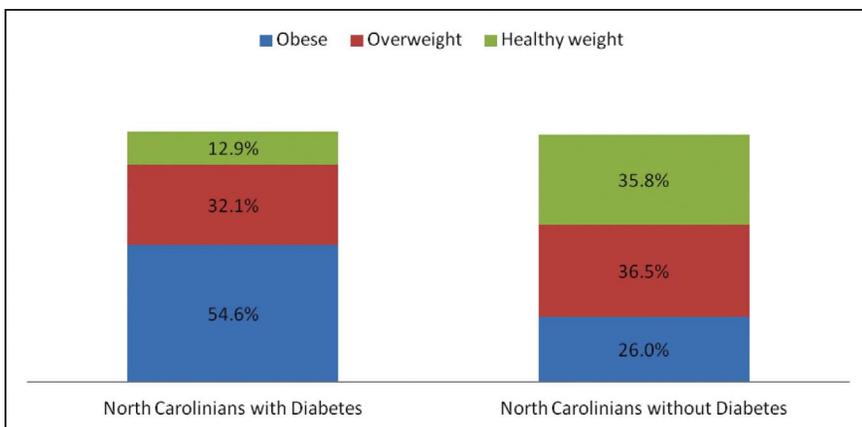
**Prediabetes** – a condition in which blood glucose levels are higher than normal but not high enough to be classified as diabetes – is a major risk factor for type 2 diabetes. Changes in diet and physical activity leading to weight loss are effective in reducing prediabetes and diabetes.

**Body Mass Index (BMI)** – an individual's body mass divided by the square of his or her height, used to estimate their level of body fat. BMIs between 25 and 30 are considered overweight, and BMIs greater than 30 are considered obese.

Overweight, obesity, and diabetes are closely related. North Carolinians who are overweight or obese are more likely to have diabetes than those in a healthy weight range (figure 2).

- Obese adults are over four times more likely to have diabetes than adults at a healthy weight (54.6% vs. 12.9%). (5)
- Four-out-of-five adults with diabetes are either overweight or obese (86.7%). (5) (Figure 2)
- Type 2 diabetes accounts for over 90 percent of diabetes cases, and the rise in type 2 diabetes is largely attributed to the increasing prevalence of overweight and obesity.

**Figure 2. Body Mass Index (BMI) by diabetes status in North Carolina 2011 (5)**



## Costs

According to the Centers for Disease Control and Prevention (CDC), the total annual medical cost of obesity-related diseases nationally was \$147 billion in 2008. (6) Obese individuals had medical costs that were \$1,429 higher than the cost for people of healthy weight. (6) The total medical cost of obesity has grown by 80 percent from the previous five-year period. This includes both direct and indirect medical costs. Direct medical costs include preventive healthcare, and diagnostic and treatment services. Indirect medical costs include reduced productivity and absenteeism. (7) Moreover, employers pay \$73.1 billion extra each year for obesity-related issues among full-time employees. (8) In North



**Healthy Eating** – Engaging in behaviors such as balancing calories, making half your plate fruits and vegetables, choosing whole grains and low-fat dairy products, drinking fewer sugar-sweetened beverages and cutting back on foods high in solid fats, added sugars and salt are accepted examples of healthy eating.

### Three Main types of diabetes:

**Type 1 Diabetes**, also called Juvenile Diabetes, generally develops in children and young people under the age of 30. A person with type 1 diabetes does not produce any insulin and needs insulin injections to control blood glucose levels.

**Type 2 Diabetes** generally occurs after the age of 30; now increasingly seen among youth and young adults. Overweight/obesity is a major risk factor for type 2 diabetes and it is mainly controlled with diet, exercise and pills.

**Gestational Diabetes** occurs in some pregnant women who never had diabetes before but have high blood glucose levels during pregnancy. Although gestational diabetes goes away in the majority of cases after the baby is born, a woman who has had it is more likely to develop type 2 diabetes later in life.

Carolina, the estimated total direct and indirect costs of eight risk factors related to overweight, obesity, and diabetes (excess weight, physical inactivity, type 2 diabetes, low fruit/vegetable intake, hypertension, high cholesterol, depression and tobacco use) for adults was \$54 billion. (9) Excess weight, the most expensive risk factor, contributed to 33 percent (\$17.6 billion) of the total costs, followed by physical inactivity (15% or \$8.3 billion). (9)

### Projected increases in obesity and diabetes in North Carolina

- If adult obesity rates continue to rise at the same rate, the obesity rate in North Carolina could reach 58 percent, with healthcare costs climbing 17.6 percent by 2030. (1) However, if obesity is reduced by five percent, North Carolina could reduce healthcare costs by 7.5 percent. (1)
- If the trend continues, obesity could contribute to 1.2 million new cases of diabetes in North Carolina over the next 20 years. (1)



## Modifiable Risk Factors for Overweight, Obesity, and Diabetes

Part of the reason that both conditions are increasing at epidemic rates is they share underlying modifiable risk factors such as poor eating habits and lack of physical activity. The good news is that being physically active and eating healthy can have a positive impact on overweight, obesity and diabetes.

Regular physical activity is associated with weight loss and insulin sensitivity. It can prevent obesity and some diabetes complications, and helps to lower other risk factors such as high blood pressure and high cholesterol.

Healthy eating is associated with healthier weight and greater insulin sensitivity among people with diabetes and prediabetes, and can help lower risk factors such as high blood pressure and cholesterol. (12)

*The Centers for Disease Control and Prevention (CDC) recommend 150 minutes of moderate or 75 minutes of vigorous intensity aerobic activity weekly and muscle strengthening on at least two days every week. (10) The recommendation for children and adolescents is 60 minutes or more of physical activity each day that includes aerobic muscle strengthening activities like gymnastics and bone strengthening activities like jumping rope. (11)*

The data for North Carolina adults show where improvements need to be made.

**North Carolinians are not getting enough physical activity:**

- Twenty-seven percent of North Carolina’s adults reported that they did not get regular physical activity in 2011. Adults with prediabetes and diabetes were getting less physical activity than the population at large. (13) (Figure 3)
- Although physical activity is very important for people with diabetes to prevent complications, only 10 percent of adults with diabetes met both aerobic and strengthening guidelines in the state in 2011. (13)
- A recent study found that people who live in less-walkable neighborhoods were 50 percent more likely to develop diabetes than people who live in walkable areas. (14)

**Physical activity** – bodily movement of any kind. It may include recreational activities like taking the stairs, walking to the park or raking leaves.

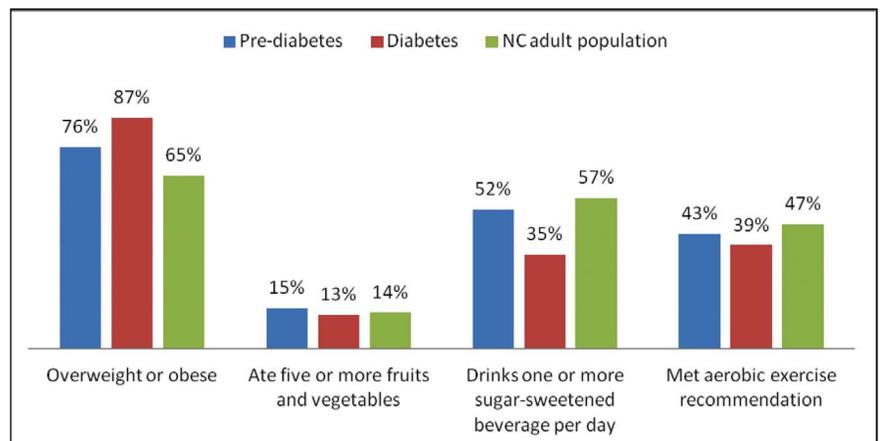
**Exercise** – a sub-category of physical activity that is planned, structured, repetitive, and purposeful in the sense that the improvement or maintenance of one or more components of physical fitness is the objective. “Exercise” and “exercise training” frequently are used interchangeably and generally refer to physical activity performed during leisure time with the primary purpose of improving or maintaining physical fitness, physical performance, or health.

**North Carolinians are not eating healthy:**

- Fruits and vegetables: In 2011, 86 percent of North Carolina adults did not consume five or more fruits, vegetables or beans daily, the amount recommended by the CDC. (15) Eating more fruits and vegetables is critical for a healthy diet.
- Sugar-sweetened beverages: In 2011, over half of North Carolina adults (56.5%) drank one or more sugar-sweetened beverages every day. (16) According to a new Harvard School of Public Health study, switching from high-calorie sweetened beverages to non-caloric drinks led to less weight gain among both obese and normal-weight children. (17) And, in adults who are genetically predisposed to obesity, avoiding sugary drinks appears to virtually negate the effects of obesity genes (18).



**Figure 3. BMI status, fruit and vegetable consumption, aerobic activity and consumption of sugar-sweetened beverages among people with prediabetes, diabetes and in the overall population, North Carolina, 2011 (13)**



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