ODPCP

OHIO DIABETES PREVENTION AND CONTROL PROGRAM

OBESITY AND DIABETES IN OHIO

Overweight and obesity have received growing attention for the role they play in increasing risk of developing type 2 diabetes, cardiovascular disease and certain cancers. According to the 2011 Ohio Behavioral Risk Factor Surveillance System (BRFSS), approximately 62.4 percent (5.5 million) of Ohio adults (age ≥18) are classified as either overweight or obese. Overweight and obesity are determined by calculating Body Mass Index, or BMI.

$$BMI = \frac{Weight\,(lbs)}{Height\,(in)^2} * 703$$

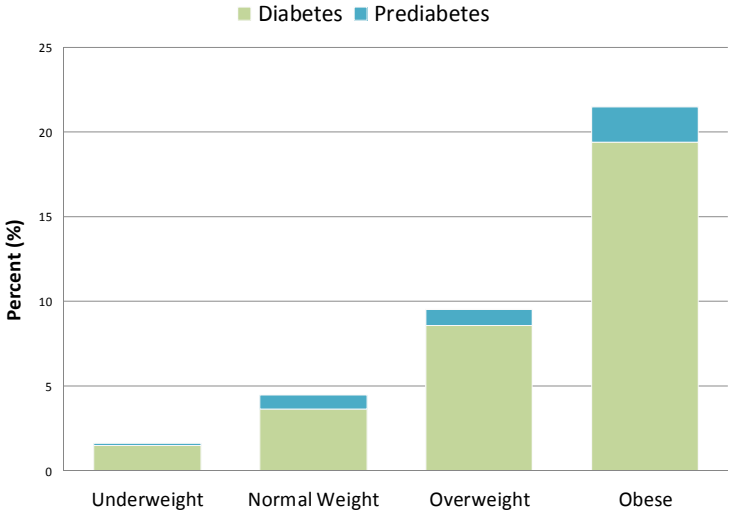
For example, a person who is 5'5" and weighs 150 lbs:

$$BMI = \frac{150}{65^2} * 703 \approx 25.0$$

BMI weight status categories include Underweight (below 18.5), Normal (18.5 - 24.9), Overweight (25.0 - 29.9) and Obese (30.0 and above). In Ohio, the prevalence of both diabetes and prediabetes by BMI weight status category, summarized in Figure 1, are as follows: underweight (1.5%, 0.1%), normal (3.6%, 0.8%), overweight (8.5%, 0.9%) and obese (19.4%, 2.1%).

FIGURE 1.

2011 Ohio Prevalence of Diabetes and Prediabetes by BMI Weight Status Category



Source: 2011 Ohio Behavioral Risk Factor Surveillance System, Chronic Disease and Behavioral Epidemiology Section; Bureau of Healthy Ohio, Ohio Department of Health, February 2013.

Figure 1 shows that the chance of developing diabetes and prediabetes increases relative to increases in BMI weight status category.

In 2009, a meta-analysis[1] was conducted in which 89 relevant studies from the United States and Europe were identified and used to determine statistically significant associations for overweight and obesity with the incidence of 18 other co-morbidities such as type 2 diabetes, cardiovascular disease, asthma, osteoarthritis and a number of relatively common cancers including breast, colorectal and kidney. Of those co-morbidities that have been scientifically linked to overweight and obesity, type 2 diabetes consistently ranked among the highest overall. Table 1 provides weight status categories for men and women (overweight and obese) and the associated increase in risk of developing type 2 diabetes compared with normal weight men and women. For example, obese men are 6.7 times more likely to develop type 2 diabetes than normal weight men.

TABLE 1

OVERWEIGHT AND OBESE TYPE 2 DIABETES RISK BY SEX

Category	Increase in Risk
Overweight Men	2.4
Overweight Women	3.9
Obese Men	6.7
Obese Women	12.4

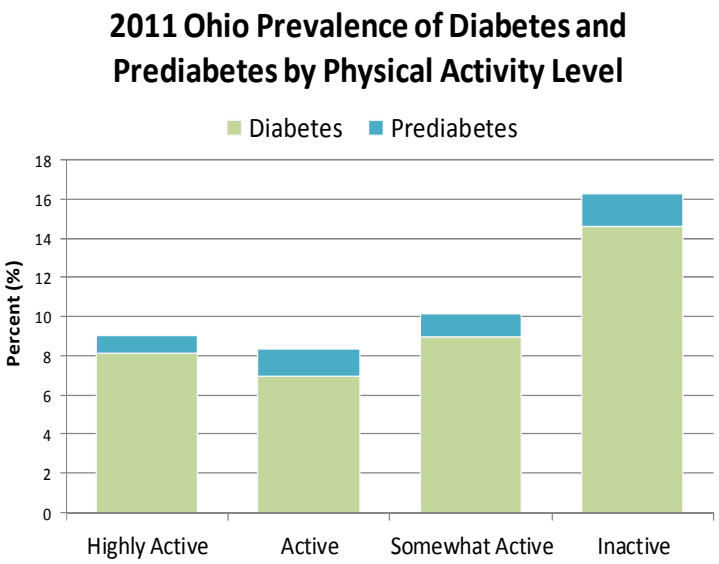
Reducing BMI

Due to the strong association overweight and obesity have with type 2 diabetes, a reduction in BMI would serve as an effective treatment strategy. Evidence demonstrates that structured, intensive lifestyle programs involving education, counseling, reduced fat and calorie intake, and regular physical activity are necessary for producing long-term weight loss. Physical activity is an especially important component as it has been shown to improve insulin sensitivity, lower blood sugar and help maintain long-term weight loss.[2]

According to the 2011 Ohio BRFSS survey, there is a general increasing trend in combined diabetes and prediabetes prevalence as physical activity level decreases (Figure 2). Here, physical activity level is defined as:

Highly Active: 300 or more minutes (moderate) or 150 or more minutes (vigorous) activity per week
Active: 150-299 minutes (moderate) or 75-149 minutes (vigorous) activity per week
Somewhat Active: 11-149 minutes of moderate physical activity, or the vigorous equivalent, per week
Inactive: less than 11 minutes of physical activity per week

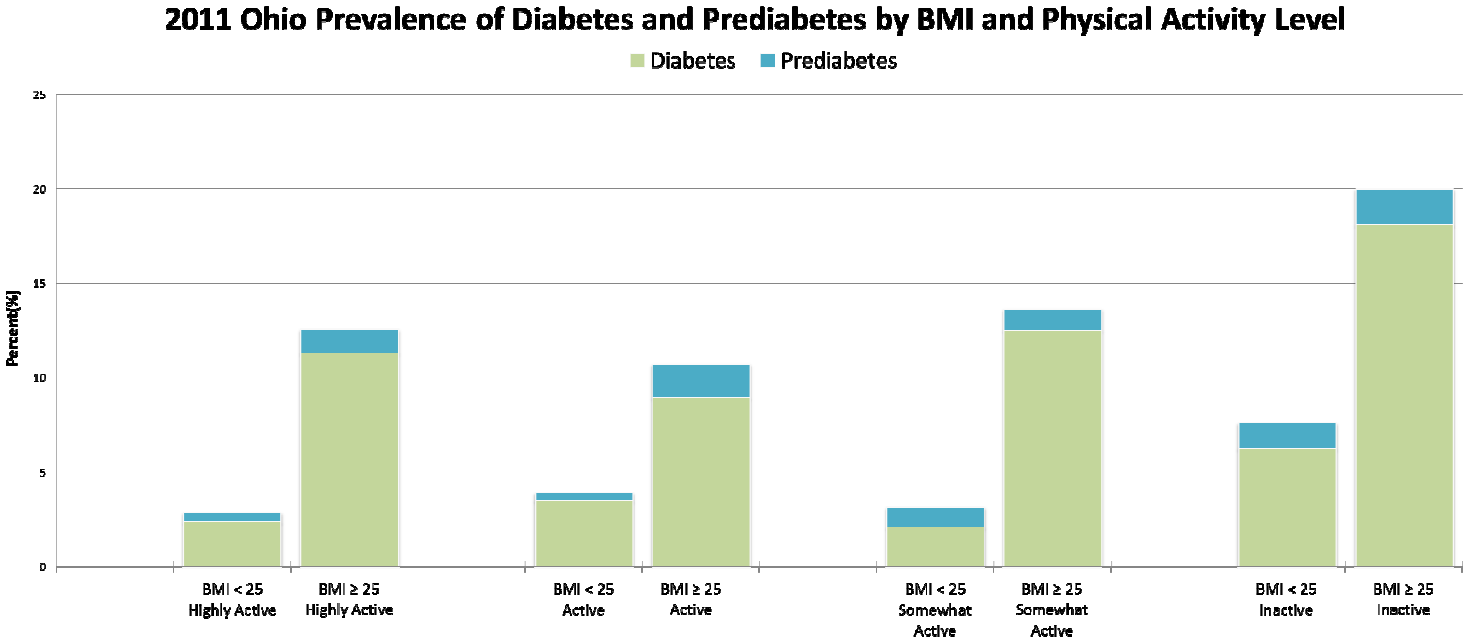
Figure 2.



Source: 2011 Ohio Behavioral Risk Factor Surveillance System, Chronic Disease and Behavioral Epidemiology Section; Bureau of Healthy Ohio, Ohio Department of Health, February 2013.

The association between diabetes and prediabetes, BMI (<25, ≥25) and physical activity is further demonstrated in Figure 3. While both BMI and physical inactivity are found to be risk factors for diabetes, the association is stronger for BMI. Even among respondents self-reporting as "highly active," there is a 4.4 times greater combined diabetes and prediabetes prevalence among those having a BMI greater than or equal to 25.0, compared with those having a BMI less than 25.

Figure 3.



Source: 2011 Ohio Behavioral Risk Factor Surveillance System, Chronic Disease and Behavioral Epidemiology Section; Bureau of Healthy Ohio, Ohio Department of Health, February 2013.

[1] *Biomed Central Public Health* 2009, 9:88
[2] *Diabetes Care* January 2004 vol. 27