

# UNDERSTANDING



## Prediabetes *and Excess Weight*



This brochure is designed to help individuals affected by excess weight understand the high risk of developing prediabetes. Many people are not aware they have prediabetes until symptoms of type 2 diabetes begin to show. Through this educational brochure, we hope to provide a better understanding of prediabetes and how it relates to excess weight by addressing the following:

- Evaluating excess weight
- Defining prediabetes
- Risk factors for prediabetes
- Testing for prediabetes
- Reducing risk of developing type 2 diabetes

### *How does excess weight affect a person's health?*

Excess weight, obesity or severe obesity can affect a person's health in many ways.

Obesity is a disease in which excess body fat has accumulated to the extent that it may have an adverse effect on a person's health. Obesity also increases a person's risk of developing hypertension, type 2 diabetes, certain types of cancer, osteoarthritis, stroke and dyslipidemia. Setting realistic goals about nutrition, physical activity and weight-loss to support lifestyle changes can delay or prevent the onset of type 2 diabetes. For more information on nutrition and exercise, please turn to page 7.



Since excess weight can affect a person's health in many ways, it is therefore important to be able to evaluate how much excess weight a person has. There are many methods of measurement that can be used; however, the most often used method is calculating the body mass index (BMI). BMI is a number calculated by dividing a person's weight in kilograms by his or her height in meters squared. There are four weight status categories (underweight, normal weight, overweight and obesity). To calculate your BMI and determine your weight status category, please turn to page 16.

## *What is prediabetes?*

Prediabetes is the state that occurs when a person's blood glucose (sugar) levels are higher than normal, but not high enough for a diagnosis of diabetes. Prediabetes can also be referred to as Impaired Glucose Tolerance (IGT) or Impaired Fasting Glucose (IFG).

Individuals with prediabetes have an increased risk of developing type 2 diabetes, hypertension and stroke. An estimated 79 million Americans age 20 years or older have prediabetes.

## Who is at risk for prediabetes?

People who are overweight and 45 years or older should be checked for prediabetes. People of normal weight and 45 years or older should ask their healthcare professional if testing is appropriate. Healthcare professionals may recommend testing adults who are younger than 45 years and overweight if they have any other risk factors for diabetes or prediabetes, such as:

- High blood pressure
- Low HDL cholesterol and high triglycerides
- Family history of diabetes
- Gestational diabetes or delivering a baby greater than nine pounds
- Belonging to an ethnic or minority group at high risk for diabetes
- Physical inactivity
- A1C levels greater than or equal to 5.7 percent, IGT, or IFG on previous testing
- History of Cardiovascular Disease
- Women with polycystic ovarian syndrome
- Other clinical conditions associated with insulin resistance

As there are not usually signs or symptoms for prediabetes, it is often discovered during a routine physical examination with basic screening for fasting blood sugar levels. A normal sugar level is below 100 mg/dL. If it's 100 to 125 mg/dL, this indicates that the individual has IFG or prediabetes.

## How does a person test for prediabetes?

There are a variety of blood tests that may indicate whether someone has prediabetes. Let's take a look at two of the most common tests and see what different results could mean.



## Fasting Blood Sugar Chart

Sugar Level	Indicates
Under 100 mg/dL	Normal
100 to 125 mg/dL	Prediabetes
126 mg/dL or higher on 2 separate tests	Diabetes

## *Fasting Blood Sugar Test*

The amount of sugar in the blood naturally fluctuates, but should stay within a normal range. The preferred way to test blood sugar is after fasting overnight for at least eight hours. A fasting blood sugar level less than 100 milligrams of sugar per deciliter of blood is considered normal. If fasting sugar levels are still 100 to 125 milligrams, this indicates prediabetes.

## *Oral Sugar Tolerance Test*

(2-hour Post-Glucose Challenge)

This test can be done by visiting a lab or a healthcare professional after at least an eight-hour fast and drinking a sweet liquid that contains a lot of sugar (75 grams). Blood sugar levels will be measured before drinking the liquid, one hour later and again two hours later. If blood sugar levels reach between 140 and 199 mg/dL after two hours, this indicates prediabetes.

## *Criteria for Diagnosing Diabetes*

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A1C  $\geq$  5.7 -6.4 percent (prediabetes)

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A1C  $\geq$  6.5 percent (diabetes)

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Fasting plasma glucose  $\geq$  126 mg/dL

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2 hour plasma glucose  $\geq$  200 mg/dL during an oral glucose tolerance test

## How can someone with excess weight and prediabetes reduce the risk of developing type 2 diabetes?

Having prediabetes exposes an individual to a higher risk for type 2 diabetes. However, this doesn't mean that everybody with prediabetes will eventually develop type 2 diabetes. Studies have shown that the risk of developing type 2 diabetes can be reduced by losing 5 to 7 percent of body weight through diet and increased physical activity.

### Healthy Meal Plan

Weight-loss occurs when people burn more calories than they consume. A calorie deficit of 500



calories a day can result in weight loss of approximately one pound per week. Writing down the food, portion size and calorie amount in a food diary can help people become aware of what they consume and can provide evidence of calorie intake (please turn to page 14 to view the "Food Diary" section of this brochure).

Someone with excess weight and prediabetes or insulin resistance may benefit from limiting carbohydrates in their diet. Foods that are high in carbohydrates include:



- Snacks like cake and cookies
- Rice
- Fruit juice
- Ice cream

Carbohydrates raise blood sugar more than other foods and will cause the body to produce more insulin. With insulin resistance, these increased amounts of insulin can promote weight gain.

## Exercise Program

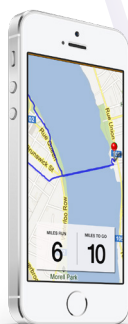
Regular exercise helps maintain weight-loss and prevent regain. It also improves glycemic control (measurement of the effects of carbohydrates on sugar level) and reduces the risk of cardiovascular disease.



A goal of 30 to 45 minutes of moderate exercise most days per week should be set. Exercise does not need to occur in a single session to be beneficial. Dividing the activity into multiple, short episodes produces similar benefits and is often more achievable.

Fortunately, it doesn't take dramatic weight-loss to reduce the risk for prediabetes or to improve one's health. Losing just five percent of one's weight can make a significant difference in reducing the risk of type 2 diabetes. Moderate weight-loss can also help delay or prevent diabetes-related complications and make sugar control easier in prediabetes.

In addition to incorporating a healthy meal plan and exercise program, today's world of technology and social networking may enhance a person's ability to monitor their health. There are many online and app-driven resources, such as food journals, calorie trackers, exercise tools and more available online, for your smartphone and more!



One of the most important things for a person with prediabetes to do is make useful, concrete decisions on lifestyle changes and exercise with the help of his or her healthcare team. People with prediabetes should be proactive and ask their healthcare professionals about their blood sugar levels and the risk factors associated with diabetes.

### *What are the consequences of diabetes?*

Excess sugar in the blood causes a lot of health-related problems. The cells of the body are probably not getting enough of the sugar they need, and when sugar levels in the blood become too high, there is damage to nerves and blood vessels, usually in the feet, hands, kidneys and eyes. Other consequences of diabetes include:

- Neuropathy (nerve damage, especially in extremities)
- Nephropathy (kidney disease)
- Retinopathy (vision problems, blindness)
- Cardiovascular disease (heart disease and increased risk of strokes)
- Erectile dysfunction in men and decreased sexual desire in both men and women
- Depression
- Amputation



## How Does the Body Manage Excess Glucose?

During a fast, or between meals, the body may rely on stored glucose in the liver – glycogen – for energy. Glycogen is composed of several thousand glucose molecules held together with water molecules. If the fast is very long, however, the body may instead use amino acids or fatty acids to help with its metabolic processes.

After we eat a meal, the processes of chewing and chemical digestion produce glucose (sugar), which is the most readily available for of fuel for our organs – especially muscle and brain tissue. In a normal state, the glucose produced from these digestive processes enters our cells to help with other metabolic processes.

Insulin acts a key that unlocks the door to let glucose in to feed our cells. When insulin is present, it also turns off the process of using glycogen from the liver to ensure that the glucose level does not rise further after a meal. In fact, insulin reduces blood glucose by collecting any excess glucose that is present in the blood stream so that it can be stored as glycogen for future use.

However, if the adequate amount of insulin is not available, as is the situation in diabetes, then this glucose is unable to enter cells. Instead, the glucose remains in the blood stream in a higher than usual concentration. This condition is referred to as elevated blood glucose or hyperglycemia.

## How can you learn more about prediabetes and excess weight?

The Obesity Action Coalition (OAC) is a more than 75,000 member-strong 501(c)(3) National non-profit organization dedicated to giving a voice to the individual affected by the disease of obesity and helping individuals along their journey toward better health through education, advocacy and support. Our core focuses are to raise awareness and improve access to the prevention and treatment of obesity, provide evidence-based education on obesity and its treatments, fight to eliminate weight bias and discrimination, elevate the conversation of weight and its impact on health and offer a community of support for the individual affected.

To see if you are at risk for prediabetes, please schedule a visit with your healthcare provider for more information. To help you prepare for your visit, we've provided you with some sample questions that you may be asked by, or sample questions for, a healthcare provider. To view the questions, please see the opposite page.



## *Sample Questions*

### **Questions a Healthcare Professional May Ask You**

- When was the last time you saw a healthcare professional?
- When did you last have blood work completed?
- Are you currently taking any medications?
- Have you been previously diagnosed with any medical conditions?
- How physically active are you on a weekly basis?
- Can you describe your eating habits?
- Does anyone in your family have diabetes?
- Do you feel fatigued or tired more than usual?
- Do you have dry mouth or find yourself drinking fluids often?
- Do you find yourself urinating often?
- Do you have blurred vision or experience headaches?
- Have you recently gained weight?

### **Questions You Should Ask a Healthcare Professional**

- Does your office have a registered dietitian on staff with diabetes and obesity training?
- Do you have diabetes educators available?
- What kind of tests do you use to determine if I have prediabetes?
- How do you prefer to treat someone with prediabetes?

## Food Diary

Please use this section to write down the food, portion size and calorie amount for each day. Logging the food one consumes has been found to increase awareness and provide objective evidence of a person's daily caloric intake.

Morning	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
Food							
Portion							
Calories							
Afternoon							

Food						
Portion						
Calories						
Evening						
Food						
Portion						
Calories						

# BMI CHART

## OBESITY

## SEVERE OBESITY

130 140 150 160 170 180 190 200 210 220 230 240 250 260 270 280 290 300 310 320 330 340 350 360 370 380 390 400

5'0"	25	27	29	31	33	35	37	39	41	43	45	47	49	51	53	55	57	59	61	63	65	67	69	71	72	74	76	78
5'1"	24	26	28	30	32	34	36	37	39	42	44	45	47	49	51	53	55	57	59	61	63	64	66	68	70	72	74	76
5'2"	23	25	27	29	31	33	34	36	38	40	42	44	46	48	50	51	53	55	57	59	61	62	64	66	68	70	72	73
5'3"	23	24	26	28	30	32	33	35	37	39	41	43	44	46	48	50	52	53	55	57	59	60	62	64	66	67	69	71
5'4"	22	24	25	27	29	31	32	34	36	38	40	41	43	45	46	48	50	52	53	55	57	59	60	62	64	65	67	69
5'5"	21	23	25	26	28	30	31	33	35	37	38	40	42	43	45	47	48	50	52	53	55	57	58	60	62	63	65	67
5'6"	21	22	24	25	27	29	30	32	34	36	37	39	40	42	44	45	47	49	50	52	53	55	57	58	60	62	63	65
5'7"	20	22	23	25	26	28	29	31	33	35	36	38	39	41	42	44	46	47	49	50	52	53	55	57	58	60	61	63
5'8"	19	21	22	24	25	27	28	30	32	34	35	37	38	40	41	43	44	46	47	49	50	52	53	55	56	58	59	61
5'9"	19	20	22	23	25	26	28	29	31	33	34	36	37	39	40	41	43	44	46	47	49	50	52	53	55	56	58	59
5'10"	18	20	21	23	24	25	27	28	30	32	33	35	36	37	39	40	42	43	45	46	47	49	50	52	53	55	56	58
5'11"	18	19	21	22	23	25	26	28	29	31	32	34	35	36	38	39	41	42	43	45	46	47	49	50	52	53	55	56
6'0"	17	19	20	21	23	24	25	27	28	30	31	33	34	35	37	38	39	41	42	44	45	46	48	49	50	52	53	54
6'1"	17	18	19	21	22	23	25	26	27	29	30	32	33	34	36	37	38	39	41	42	44	45	46	48	49	50	52	53
6'2"	16	18	19	20	21	23	24	25	27	28	30	31	32	33	35	36	37	39	40	41	42	44	45	46	48	49	50	51
6'3"	16	17	18	19	21	22	23	24	26	28	29	30	31	33	34	35	36	38	39	40	41	43	44	45	46	48	49	50
6'4"	15	17	18	19	20	21	23	24	26	27	28	29	31	32	33	34	35	37	38	39	40	41	43	44	45	46	48	49
6'5"	15	16	17	19	20	21	22	24	25	26	27	29	30	31	32	33	34	36	37	38	39	40	42	43	44	45	46	48

UNDERWEIGHT = LESS THAN 18.4 | NORMAL WEIGHT = 18.5-24.9 | OVERWEIGHT = 25 - 29.9 | OBESITY = 30 - 39.9 | SEVERE OBESITY = GREATER THAN 40

## Notes

Please use this section to write down important notes about your health. You can use this section to capture information such as your lab results, your favorite exercise, thoughts, goals and much more!



## Find the Right Healthcare Provider to Talk about Your Weight and Health!



**Obesity  
Care  
Providers**

Powered by the Obesity Action Coalition

📍 What is your zip code?

🏥 Select Specialty...

🔍 SEARCH

### How does it work? It's easy! Filter your search by:

#### Specialization:

- Bariatric Surgeon
- Dietitian
- Nurse Practitioner
- Physician
- Physician Assistant
- Psychiatrist
- Psychologist

#### Location:

- Use your zip code to do a quick search
- Find healthcare providers near you!

### Get Useful Tips

#### Prepare for your appointment with:

- Valuable tips on what to bring during your consultation
- Practical information to better understand your journey with weight
- Questions to ask in order to have an honest conversation about your weight and health

**Finding the right  
healthcare provider  
is a click away!  
Get started now!**

**ObesityCareProviders.com**

This resource is  
brought to you by:







# ABOUT THE OBESITY ACTION COALITION (OAC)

The Obesity Action Coalition (OAC) is a National non-profit organization dedicated to giving a voice to individuals affected by obesity and helping them along their journey toward better health. Our core focuses are to elevate the conversation of weight and its impact on health, improve access to obesity care, provide science-based education on obesity and its treatments, and fight to eliminate weight bias and discrimination.



**YOUR WEIGHT  
MATTERS**  
CONVENTION & EXPO

**ANNUAL  
CONVENTION**



**NATIONAL  
AWARENESS  
CAMPAIGNS**



**VIBRANT  
COMMUNITY**



**ADVOCACY**



**PUBLIC  
EDUCATION**

## LEARN, CONNECT, ENGAGE

The OAC knows that the journey with weight can be challenging but we also know that great things happen when we learn, connect and engage. That is why the OAC Community exists.

Our Community is designed to provide quality education, ongoing support programs, an opportunity to connect, and a place to take action on important issues.

**Through the OAC Community,  
you can get access to:**

- Weight & Health Education
- Community Blogs
- Community Discussion Forum
- Ongoing Support • Meaningful Connections  
AND MUCH MORE



**JOIN TODAY: GO TO  
OBESITYACTION.ORG/JOIN**

info@obesityaction.org

(800) 717-3117 | (813) 872-7835

Fax: (813) 873-7838



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@ObesityAction

Special thanks to Holly F. Lofton, MD, for assistance in creating this brochure.

Photography in this brochure is provided by the Rudd Center for Food Policy & Obesity

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The information contained in the Understanding Prediabetes and Excess Weight Brochure is not a substitute for medical advice or treatment from a healthcare professional. The OAC recommends consultation with your doctor and/or healthcare professional.



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