Prediabetes 101

What is it and what can I do about it?

Patient Education
Intermountainhealthcare.org/diabetes
What do you already know about prediabetes?
Fact or Fiction?

There are often no symptoms of prediabetes.

FACT
Fact or Fiction?

It’s estimated that 86 million Americans have prediabetes. That’s more than 1 in 3 adults.

FACT
Fact or Fiction?

Prediabetes is not an actual diagnosis. My doctor just thinks I’m likely to get diabetes.

FICTION
Fact or Fiction?

Once you’ve been diagnosed with prediabetes, there is nothing you can do to prevent or delay type 2 diabetes.

FICTION
To treat prediabetes, most people need to change their lifestyle drastically.

Fact or Fiction?

FICTION
The purpose of this class is to help you get started with diabetes prevention

Options

• Follow-up with your primary care provider
• Nutrition counseling with a dietitian
• Diabetes Prevention Program  
  (*The Weigh to Health*® or another community diabetes prevention program)
Questions we’ll answer in this class

1. What is prediabetes—and what is type 2 diabetes?
2. Why is diabetes such a big concern?
3. What is your risk of getting diabetes?
4. What can you do to prevent diabetes?
5. What are you ready to do to get started?
6. What’s your next step?
What is prediabetes — and what is type 2 diabetes?
Diabetes: A brief overview

**Diabetes** is a lifelong disease that can cause problems throughout your body. People with diabetes have high levels of blood glucose (blood sugar).

There are several types of diabetes:

- Type 1
- **Type 2** (prediabetes leads to this)
- Latent autoimmune diabetes of adulthood (LADA)
- Gestational diabetes (during pregnancy)
What is prediabetes?

**Prediabetes** means your blood glucose levels are high, but not high enough to be diagnosed with diabetes.

FPG = Fasting Plasma Glucose

HBA1C = Hemoglobin A1C

*(More detail on these tests to come)*
86 million Americans live with prediabetes (more than 1 in 3 US adults)

Half of Americans age 65 and older have prediabetes

Of people who have prediabetes, only 1 in 10 are aware of their condition
What are the risks of prediabetes?

People with prediabetes are at greater risk for:

• Developing type 2 diabetes.
  
  *About 1 in 4 people with prediabetes will develop type 2 diabetes within 5 years — unless they lose weight and exercise.*

• Having a heart attack, stroke, or other cardiovascular problem.

• Developing other serious health problems, such as high blood pressure, or kidney disease.
How things normally work

This is how your body uses food when you *don’t* have diabetes

When you eat, your body breaks food down into glucose. **Glucose** is a type of sugar that is the body’s main source of energy.
How things normally work

Glucose from food is absorbed into the bloodstream. Your **blood glucose** — the amount of glucose in your blood — begins to rise.
How things normally work

As blood glucose rises, the body sends a signal to the pancreas, which releases a hormone called **insulin**.
How things normally work

Insulin acts as a key to unlock the cell so glucose can get in.

Once inside the cell, most of the glucose is used for energy right away.
How things normally work

Some glucose is stored by the liver and muscles for later use.
Blood glucose regulation

Blood glucose goes up and down throughout the day.

As your blood glucose **rises** (after a meal), the pancreas releases insulin.
Blood glucose regulation

When your blood glucose is **low** (between meals), your liver releases glucose.
Normal blood glucose regulation

Without diabetes, blood glucose levels stay within normal limits.
In a person **with diabetes**, levels tend to run high, and may vary dramatically. This can lead to damage to blood vessels and nerves.
Diabetes and insulin resistance

• In a person with type 2 diabetes, the cells don’t use insulin properly. They can’t burn enough glucose for the energy your body needs.

• Your pancreas has to keep producing more insulin to keep blood glucose levels within normal limits.

• Over time the pancreas cannot keep producing extra insulin and blood glucose levels rise.
How are diabetes and prediabetes diagnosed

Three diagnostic tests show if you have prediabetes or diabetes:

- Fasting Plasma Glucose (FPG)
- Hemoglobin A1C (HbA1c)
- Oral Glucose Tolerance Test (OGTT)
Fasting Plasma Glucose (FPG)

- You must fast for at least 8 hours before the test
- Your fasting blood glucose is drawn at a laboratory
  - Diabetes is considered 126 mg/dL or above
  - Prediabetes is between 100 and 125 mg/dL
  - Normal FPG is below 100 mg/dL
Hemoglobin A1c (HbA1c or A1c)

- This blood test measures the amount of glucose molecules attached to the red blood cells (RBC).
- Glucose stays on the RBC until the cells die. Cells are replaced by new cells every 2 to 3 months.
- High blood glucose levels cause more glucose to attach to the RBC.
  - Diabetes is 6.5% or greater
  - Prediabetes is 5.7% to 6.4%
  - Normal HbA1c is less than 5.7%
Oral Glucose Tolerance Test

• 2-hour Oral Glucose Tolerance Test
• Level of blood glucose 2 hours after a 75-gram dose of glucose
  o **Diabetes** is $\geq 200$ mg/dL
  o **Prediabetes** is 140-199 mg/dL
  o Normal is below 140 mg/dL

*This test is used less often*
2 Why is diabetes such a big concern?
What problems can uncontrolled diabetes cause?

Diabetes damages blood vessels and nerves.

Over time this damage can lead to:

• Heart disease and stroke
• Kidney disease
• Neuropathy (loss of feeling at nerve endings)
• Eye disease (retinopathy, glaucoma, cataracts, blindness)
• Foot and leg problem (sometimes leading to amputation)
• Sexual problems (erectile dysfunction)
• Stomach and intestinal problems (gastroparesis, enteropathy)
• Problems with skin, teeth, and gums
Triple Trouble

Many people with diabetes also have:

- **High blood pressure:** 140/90
- **High cholesterol:**
  - High LDL cholesterol (“bad cholesterol”)
    - 100 mg/dL or higher
  - Low HDL cholesterol (“good cholesterol”)
    - 40 mg/dL or lower for men
    - 45 mg/dL or less for women
- **High triglycerides:** 150 mg/dL or higher

Each condition alone can damage heart and blood vessels. If you have all 3 — as many people do — this damage is likely to happen sooner and progress faster.
Let’s talk:
What are your own concerns about getting diabetes?
What is your risk of getting diabetes?
Family and health history risk factors

• Age: over 40
• Family history: a mother, father, brother, or sister with type 2 diabetes
• Race: African American, Pacific Islander, Hispanic American, or Asian American
• Previous gestational diabetes, or delivery of a baby over 9 pounds
• Women with polycystic ovary syndrome

These factors are out of your control, but there are other factors you can change.
Health risk factors

• Weight — overweight or obese
  (BMI 25 or greater; 23 or greater in Asian Americans)

• Cholesterol levels
  (HDL cholesterol less than 35, triglycerides greater than 250)

• High blood pressure
  (140/90 or higher)

You can work to change these risk factors over time.
Lifestyle risk factors

- No regular exercise
- Unhealthy diet
- Smoking

You can do a lot about these risk factors — starting today!
Will *you* get diabetes?

If you have prediabetes, losing weight by eating healthy and being more active can cut your risk of getting type 2 diabetes in half.
Most people can prevent diabetes

A 10-year study called the Diabetes Prevention Program showed that people who used either

- **Lifestyle changes** (reduced the risk by 58%)
  
or

- **Medicine (Metformin)** (reduced the risk by 31%) could usually prevent diabetes

**Fewer than 1 in 10 people in the study developed diabetes.**
This includes people of all ages, sexes, and ethnic groups!
Let’s talk:

What does it mean to you to know that you can prevent diabetes?
What can you do to prevent diabetes?
Lifestyle changes can prevent or delay type 2 diabetes

Studies show that most people with pre-diabetes can prevent or delay the development of type 2 diabetes by up to 58% (71% for people over 60 years) through lifestyle changes alone.
Your lifestyle choices play the biggest role in whether you get diabetes.
Key health and lifestyle changes to

• Lose weight
• Be active every day
• Make wise food choices
• Stop smoking—or don’t start
• Take medicine as prescribed
• Visit your doctor and have your blood glucose tested every year

We can help you with all of these!
Lose weight

Modest weight loss can help prevent or delay diabetes

• Modest weight loss = 5% to 7% of body weight (that’s 10 to 14 pounds for a 200-pound person)

• A 10% weight loss (20 pounds for a 200-pound person) can prevent more than 3 out of 4 people with prediabetes from developing type 2 diabetes

• Aim for about 1 to 2 pounds per week
Be physically active every day

• Start with one activity you know you can do
• Do it for a few minutes every single day
• Build up a little at a time
Be physically active every day

• Aim for about 30 minutes of moderate physical activity such as a brisk walk most days (150 minutes per week)

• To lose weight or maintain weight loss: Aim for about 60 minutes most days (300 minutes per week)
How does physical activity help prevent diabetes?

It helps your heart by:

• Lowering your blood glucose and improving your body’s ability to use glucose
• Improving blood circulation
• Improving blood cholesterol levels
• Helping prevent high blood pressure
• Helping counteract conditions which can lead to heart attack and/or stroke in later life
What else can physical activity do for you?

• Helps manage weight and increase energy levels
• Helps prevent bone loss and improve muscle strength and tone
• Helps manage stress and releases tension
• Improves self-image
• Improves sleep
• Counters anxiety and depression, increases enthusiasm and optimism
• Helps delay or prevent illnesses associated with aging
What physical activities are best?

*Start with aerobic exercise:*

- **Moderate** (like a brisk walk)
  or
- **Vigorous** (like jogging or running)

*Then add:*

- Stretching
- Resistance training *(weights)*
Is walking enough?

According to the National Diabetes Prevention Program, **YES!!!**

A 30 minute walk after a meal has been shown to lower post meal blood glucose levels.
Choose from a variety of activities

• **Light Activity**: office work, housework, golf

• **Moderate Activity**: gardening, dancing, walking, water aerobics

• **Vigorous Activity**: 12 mph bicycling, elliptical training, swimming (crawl)

Work up to these levels!
Sticking with it: tips for success

- Set realistic short term & long term goals
- Start off slowly & track your progress
- Consider your interests & vary your activities to stay interested
- Include time to warm-up, cool-down, & stretch
- Carry water
- Wear comfortable clothes & shoes
- Find a buddy & schedule regular times to exercise

Make it a part of your life!
Let’s talk:
What can you do to fit more physical activity into your day?
Make healthy food choices
Carbohydrates control blood glucose

Carbohydrates control blood glucose – the source of energy for the brain

• Choose more unrefined carbohydrate sources — such as whole grains, fresh vegetables and fruits, and low fat dairy

• Eat carbohydrates and protein together:
  o Increased fullness
  o Food satisfaction
  o Blood sugar control
What is carb counting — and why is it important?

1 carbohydrate serving = 15 grams of carbohydrates

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<th>Food</th>
<th>Portion Size</th>
<th>Carb Grams</th>
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</thead>
<tbody>
<tr>
<td>Alfalfa sprouts</td>
<td>1 c raw</td>
<td>0</td>
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<tr>
<td>Angel food cake</td>
<td>1/12 cake (2 oz)</td>
<td>30</td>
</tr>
<tr>
<td>Apple</td>
<td>1 small (4 oz)</td>
<td>15</td>
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<tr>
<td>Applesauce, unsweetened</td>
<td>1/2 c</td>
<td>15</td>
</tr>
<tr>
<td>Apricots</td>
<td>3 medium (5½ oz)</td>
<td>15</td>
</tr>
<tr>
<td>Artichoke</td>
<td>1/2 c cooked</td>
<td>5</td>
</tr>
<tr>
<td>Asparagus</td>
<td>1/2 c cooked, 1 c raw</td>
<td>5</td>
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<tr>
<td>Avocado, medium</td>
<td>1/6 (1 oz)</td>
<td>2 (1 whole=15 carbs)</td>
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<tr>
<td>Bacon, cooked</td>
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<tr>
<td>Bagel</td>
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<td>Baked beans</td>
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</tr>
<tr>
<td>Bamboo shoots</td>
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</table>

0 carbohydrate serving

2 carbohydrate servings

1 carbohydrate serving
Food labels

- First look at serving size
- Next look at **Total Carbohydrate**
- When comparing foods, choose higher fiber
Food labels-carb counting

1 carbohydrate serving = 15 grams of carbohydrates

31 grams of carbohydrate divided by 15 grams per servings = 2 carbohydrate servings
General carb recommendations

Number of carbohydrate servings you should have per meal – or split between a meal and a snack:

• Women need about 3 to 4 servings per meal — or 45 to 60 grams
• Men need about 4 to 5 servings per meal — or 60 to 75 grams
Let’s talk:

Why is it important to eat protein and carbohydrates together?

• Increased fullness
• Food satisfaction
• Blood sugar control
What’s on Your Plate?
Try to follow the plate method

Make wise food choices

Eat more whole grains

Choose heart-healthy proteins

Fill half your plate with fruits and vegetables
The Plate Method
Make wise food choices

• Choose unsaturated fats and oils

• Choose low-fat dairy products

• Limit sodium, sugar, and alcohol
Make wise food choices

Consistent eating patterns

• Eat within 2 hours after getting up in the morning—and eat every 4 to 6 hours while awake
• Eat meals and snacks at regular times every day
• Don’t skip meals—and don’t eat between meals, except for planned snacks

• **Eat about the same amount of carbs** each day
• **Evenly space your carbs** throughout the day
How to control your portion sizes

- Measure or weigh your portions
- Eat slowly — and stop before you’re full
- Read the label
- Develop “hand-eye coordination”

- fist = 1 cup
- palm = 3 ounces
- thumb tip = 1 teaspoon
- handful = 1–2 ounces
- thumb = 1 ounce
Make wise food choices

Who can help:

• A registered dietitian — for personal nutrition counseling
• Intermountain Healthcare’s The Weigh to Health® program
• Community Diabetes Prevention Program

(You’ll be given contact information at the end of this class)
Stop smoking

- People with diabetes are 3 times as likely to die of heart attack or stroke. Smoking AND diabetes make you **11 times** more likely.
- Smoking raises your blood sugar level.
- Smoking even just ONE cigarette reduces the body’s ability to use insulin by 15%.
Stop smoking

Who can help:

- **1-800-QUIT-NOW**
  1-800-784-8669

- **Free & Clear (Quit for Life)**
  1-800-292-2336

- **Utah Tobacco Quit Line**
  1-888-567-8788

- **Freedom From Smoking**
  1-800-586-4872
Take medicine as prescribed

Metformin

• Reduces insulin resistance

• Helps control prediabetes (along with lifestyle changes)

• For most, the dose is 1000 mg at breakfast and 1000 mg at dinner every day

• Side effects include gas, bloating, cramping, and diarrhea — tell your doctor

Who can help:
• Your doctor or pharmacist
Visit your doctor every 3 to 6 months

Your doctor will retest your blood glucose levels and check your overall health

Who can help:
• Your doctor
Let’s talk:

What seems like the easiest things you could do to start preventing diabetes?
What are you ready to do?
Consider your current lifestyle habits.
Start with baby steps:

Choose one small goal to start with

Use the Readiness Worksheet to help you set one goal you’re ready to work on
Start with baby steps:

Make a detailed plan for how to keep your goal

You may want to finish filling this out at home
6

**What’s your next step?**
*(How can we help?)*
Follow up with your doctor

Visit your doctor every 3 to 6 months to:

• Repeat blood glucose tests
• Recheck your weight and blood pressure
• Check your overall health
Nutrition counseling with a registered dietitian

Some insurance plans cover 3 to 5 sessions per year
• One-on-one counseling
• Personalized nutrition goals
• Personalized support

Most SelectHealth plans have no co-pay and cover up to 5 visits per year
Diabetes Prevention Program

1 year program aimed at improving healthy lifestyle

• 16 weekly class sessions
• 6 months of follow-up care
• Goal of 5–7% weight loss
• Cost of the program varies by location
  • Scholarships are often available
Community Diabetes Prevention Programs in Utah and Idaho

CDC – Registry – Diabetes Prevention Recognition Program

Utah:  

Idaho:  
https://nccd.cdc.gov/DDT_DPRP/Registry.aspx?STATE=ID
Intermountain Healthcare’s
*The Weigh to Health®* Program

• Meets requirements of the CDC Diabetes Prevention Program

• 16 weekly sessions, followed by 6 monthly follow-up sessions*
  
  • Includes four 1 on 1 visits with a registered dietitian
  
  • Classes cover healthy eating, physical activity, behavior change, grocery shopping, meal planning (and more!)

• The *Weigh to Health®* Program MAY be covered by your health insurance

*this curriculum beginning in 2018
Let us know your plan for preventing type 2 diabetes

• What is your personal goal?
• Who will help you?
  ❑ Follow up with your doctor
  ❑ Nutrition counseling with a registered dietitian
  ❑ Community Diabetes Prevention Program
  ❑ Intermountain Healthcare’s *The Weigh to Health*® program

*You can do it — and we’ll be here to help!*
Let’s prevent diabetes!