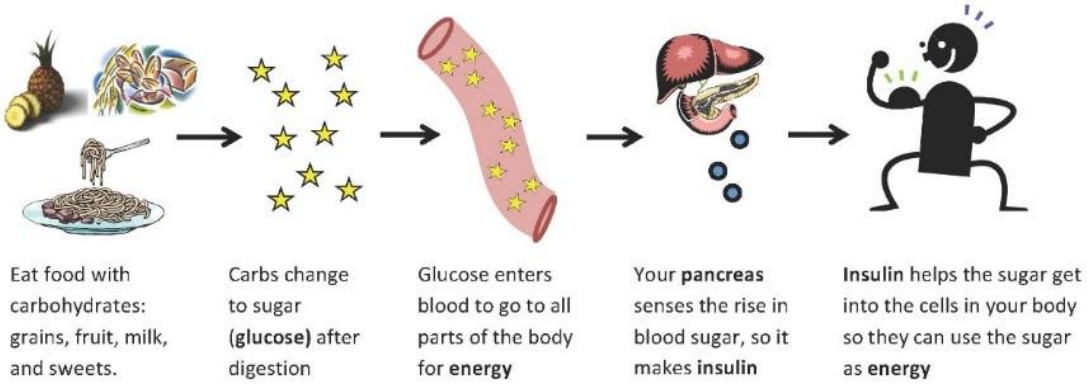
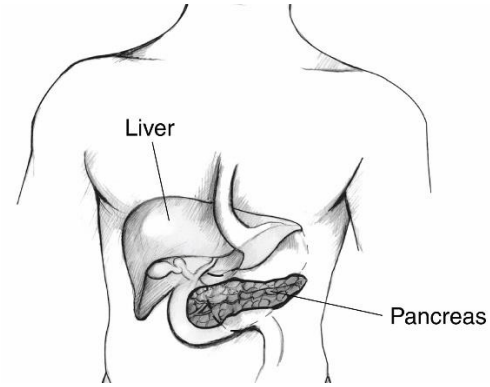
Boulder Community Health

PATIENT EDUCATION

Diabetes and Prediabetes

Over 38 million people in the U.S. have diabetes. It is important to know that you are not alone. At BCH we are committed to helping you learn about your disease and helping you to manage it. This handout will help you to understand what happens in the body normally, and how it differs when you have diabetes.

Patient Information	
Normal process of turning food into energy	• The cells of your body need energy to work. When you eat, some of your food is broken down into sugar (also called glucose) which provides energy to your body. • Your blood carries the sugar to the cells of your body, but once it is there, it needs help getting into the cells. That is where insulin comes in. • Insulin is a hormone that is made in your pancreas by beta cells. Your pancreas is an organ that is behind your stomach. • Insulin helps move the sugar from your blood into your body's cells for energy. • After you eat, the right amount of insulin is released by your pancreas to move the sugar into your cells. • Your liver stores extra sugar. If you go too long without eating, your liver releases sugar into the blood so that your body's cells still get the energy they need until you eat.  (Image: KU Medical Center, University of Kansas, 2013)

What happens when you have diabetes	• Diabetes is a condition in which your body has a problem in how it uses food and sugar for energy. As a result, your blood sugar levels are too high. • When you have diabetes, your pancreas doesn't make enough, or any, insulin, or the insulin you do make doesn't work the right way. • This means that the sugar levels in your blood stay high because the sugar can't get into your cells, and your cells don't have the energy they need to work right. • When there is too much sugar in your blood, over time it can harm your eyes, kidneys, heart, and nerves.  (Image: NIH, n.d.)
Types of diabetes	**Type 1 diabetes:** • Type 1 diabetes is an autoimmune disease. For reasons we don't fully understand, your own immune system attacks the beta cells in your pancreas so that they don't make enough, or any insulin. • This kind of diabetes mostly happens in children and young adults (which is why it used to be called juvenile diabetes), but it can happen at any age. • A person with type 1 diabetes must administer insulin throughout the day to stay alive. Many people use an insulin pump to do this. • Type 1 diabetes accounts for about 5-10% of people diagnosed with diabetes. **Type 2 diabetes:** • The insulin that your body makes doesn't work right, or there isn't enough of it. This is the kind of diabetes that 90% of people with diabetes have. • Type 2 diabetes is a progressive disease as your pancreas slowly stops making enough insulin. It could take many years. • This kind of diabetes most often happens after age 30-40, but can occur earlier, especially if you have risk factors. • The risk factors for getting type 2 diabetes are: ➢ A family history of diabetes ➢ Not getting enough exercise ➢ Being overweight ➢ Having gestational diabetes when pregnant ➢ Being African American, Asian American, Hispanic/Latino, American Indian, or Pacific Islander

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Gestational diabetes:

- This kind of diabetes causes high blood sugar levels during pregnancy, but they usually go back to normal after the baby is born.
- Women who get this kind of diabetes are at a higher risk of getting type 2 diabetes later in their life.

Prediabetes:

- This is when you have higher than normal blood sugar levels, but not high enough to be diagnosed with type 2 diabetes.
- Your pancreas is still making insulin, but your body cells aren't able to use it the right way.
- If you are diagnosed with prediabetes, there are things you can do (diet changes and getting more physical exercise) to prevent getting type 2 diabetes.

How is diabetes diagnosed

- Diabetes is diagnosed based on your blood sugar levels. If you don't have clear symptoms of diabetes, then your blood sugar levels will be tested a second time to be sure of the diagnosis.
- Your healthcare provider will be looking for these numbers to make a diagnosis:

	Non-diabetic	Prediabetes	Diabetes
Before meals (fasting)	Less than 100 mg/dL (normal)	100-125 mg/dL	126 mg/dL or higher
Random	Less than 140 mg/dL	140-199 mg/dL	200 mg/dL or higher
A1C	Less than 5.7 %	5.7 – 6.4 %	6.5 % or higher

- For the first test, you don't eat or drink anything overnight (called fasting), and then have your blood drawn in the morning.
- The second test is not dependent on when you ate and can be done at a random time during the day.
- The A1C test looks at your average blood sugar over the last 2-3 months, so you don't need to be fasting. It can be done any time of the day.

High blood sugar

- Without insulin, the sugar in your blood builds up. This is also called **hyperglycemia**.
- Your body may get rid of some of this excess sugar through your urine so you may find that you find you are urinating a lot. This extra urination can make you feel thirsty all the time.
- Since your cells aren't getting sugar to use for energy, your body starts breaking down stored fat to use as energy.
- Because of this you might notice you lose weight, even though you are always hungry and eating.
- Burning a lot of fat causes acids called ketones to build up in your body.
- If these acids keep building up, it can cause something called diabetic ketoacidosis (DKA) which can be deadly if not treated right away.

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<table>
<tr><td></td><td>Signs & symptoms of high blood sugar (hyperglycemia) include:
Tiredness
Feeling thirsty & hungry
Weight loss
Blurry vision
Slow healing
Sexual problems
Numbness or tingling in the feet or hands</td></tr>
<tr><td>I have diabetes; now what</td><td>Living with diabetes is not easy. The choices you make each day will affect your blood sugar levels and those levels will affect your health in the future.
It is important that you work together with your healthcare provider and diabetes educator to manage your diabetes.
You will need to make healthy food choices, get exercise, check your blood sugar, and take medicines if needed.
All people with type 1 diabetes will need insulin. Most people with type 2 diabetes will need some kind of diabetes medicine to keep their blood sugar levels in the right range, even if it is not insulin. Because type 2 diabetes is progressive, your need for medicines may change over time. It is important that you monitor your blood sugar closely to know about any changes.
The goals for your blood sugar once you have diabetes:
<table>
<tr><th></th><th>Blood sugar targets</th></tr>
<tr><td>Before meals (fasting)</td><td>70 – 130 mg/dL</td></tr>
<tr><td>1-2 hours after meals</td><td>Below 180 mg/dL</td></tr>
<tr><td>A1C</td><td>A1C less than 7%</td></tr>
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For more information about diabetes, please contact your healthcare provider or diabetes educator.

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