



# Taking Control with Insulin

*Managing Blood Glucose Levels*

An Omnis Health Guide to monitoring and managing your diabetes



# What is insulin and *why is it important?*

Insulin is a hormone made by the pancreas that allows your body to use sugar (glucose) from carbohydrates in the food that you eat for energy or to store for future use.<sup>1</sup> Type 1 diabetes occurs when the body stops producing insulin. This makes insulin treatment necessary, through insulin injections or an insulin pump. Type 2 diabetes occurs when the body fails to properly use and store glucose. Instead of converting sugar into energy, it backs up in the bloodstream and causes a variety of symptoms. Type 2 diabetes can be treated through the use of oral medications. Even though the body still produces insulin with type 2 diabetes, insulin treatment can still be necessary to live a healthy life.

Once diagnosed with diabetes, you and your healthcare provider will develop a treatment plan to maintain healthy blood glucose levels. Insulin injections may not always be necessary, but if you are diagnosed with type 1 diabetes these injections will become a part of your daily routine.

The goal of insulin treatment is to control blood glucose levels and prevent the possible complications associated with diabetes. This includes kidney damage, nerve damage, vision loss and cardiovascular disease.



# Types of insulin

Not all insulin is the same. There are several different types of insulin, and each type works differently in the body.<sup>2</sup> Insulin types vary depending on how long they take to start working in your system, how long they take to peak, and the length of time they last.

## ▶ *Rapid-acting:*

This type of insulin is usually taken shortly before a meal to cover the blood glucose increase that occurs after eating. It is sometimes used with longer-acting insulin.

## ▶ *Short-acting:*

This type of insulin is also commonly taken before meals to cover the blood glucose elevations that occur from eating and is also usually paired with a longer-acting insulin.

## ▶ *Intermediate-acting:*

This type of insulin covers the blood glucose increases when rapid-acting insulins stop working. This type of insulin takes longer to start working than short-acting insulin, but lasts for a longer period of time.

## ▶ *Long-acting:*

This type of insulin begins working in one to two hours and works continuously in the body for about 24 hours.

Type	Brand name	Onset*	Peak*	Duration*
<b>Rapid-action</b>	Humalog Novolog Apidra	10 - 30 minutes	30 minutes - 3 hours	3 - 5 hours
<b>Short-acting</b>	Regular (R)	30 minutes - 1 hour	2 - 5 hours	Up to 12 hours
<b>Intermediate-acting</b>	NPH (N)	1.5 - 4 hours	4 - 12 hours	Up to 24 hours
<b>Long-acting</b>	Lantus Levemir	0.8 - 4 hours	Minimal peak	Up to 24 hours

\*Onset - length of time before insulin reaches bloodstream

Peak - time period when insulin is most effective

Duration - how long insulin works for

# Insulin

## *treatment options*

There are a couple different ways that insulin can be administered to diabetes patients. Insulin can be administered through insulin injections or insulin pumps and both of these options have their pros and cons.<sup>3</sup> You and your healthcare professional can discuss which method will best suit your lifestyle.

### *Insulin Injections*

#### **Pros:**

- The Insulin injection method requires less education and training than the insulin pump method. It is a much simpler way to self-administer insulin than the pump method.
- The insulin injection method is also much cheaper than pump therapy.

#### **Cons:**

- Low blood glucose levels can occur because you may be using different types of insulin.
- With frequent injections, you may develop resistant areas on your body where insulin will not absorb properly.

### *Insulin Pump*

#### **Pros:**

- The insulin pump method of treatment delivers the hormone continuously throughout the day, causing fewer swings in blood glucose levels.
- This delivery system most closely mimics the body's normal release of insulin.<sup>4</sup>
- The pump method is very accurate and precise.
- The insulin pump allows for a more flexible lifestyle.

#### **Cons:**

- The pump attaches to your body all day, which can be distracting and uncomfortable.
- Insulin pump supplies can be very expensive.

As you and your healthcare provider develop an insulin treatment plan, take into consideration all aspects of your lifestyle, and make an educated decision on what type of insulin treatment will work best for you. It may be helpful to develop an insulin schedule, to make sure you stay on track and maintain healthy blood glucose levels.



## Monitoring *with a reliable meter*

Using a blood glucose meter to monitor your blood glucose levels is another very important aspect in your diabetes management. Blood glucose meters are a critical tool in understanding whether or not your insulin treatment is providing effective results. The ADA (American Diabetes Association) recommends that people using insulin should test blood glucose levels three or more times a day. With careful blood glucose monitoring and insulin treatment, diabetics can live long and healthy lives.

There are many different types of blood glucose meters on the market today. When choosing what meter to use, consult your healthcare professional. It is important to use a meter that is accurate and reliable. Test strips and other supplies for blood glucose meters can be very expensive. Look for meters and testing supplies that are high quality, but won't take a toll on your wallet.

If you are having trouble meeting your blood glucose goals, meet with your healthcare professional to discuss your testing results and develop a plan to reach diabetes management success.

# Testing *more often*

## You should test your blood glucose levels more often when–

- Your glucose levels are not meeting your diabetes management goals
- Your diabetes management plan has changed
- You are ill or not feeling well
- You are under a lot of stress

Before sticking your finger, be sure to help stimulate blood flow to your hands and fingertips.

People who are using an insulin pump as a treatment plan may require more frequent blood glucose testing. Consistent monitoring with a blood glucose meter is always important, however when you are ill or under a lot of stress your glucose levels may fluctuate more intensely. If this is the case, then increasing your testing frequency is a good idea.

## You are not alone, *diabetes affects millions*

**Prevalence:** In 2012, 29.1 million Americans, or 9.3% of the population, had diabetes.

- Approximately 1.25 million American children and adults have type 1 diabetes.

**Undiagnosed:** Of the 29.1 million, 21.0 million were diagnosed, and 8.1 million were undiagnosed.

**Prevalence in Seniors:** The percentage of Americans age 65 and older remains high, at 25.9%, or 11.8 million seniors (diagnosed and undiagnosed).

**New Cases:** The incidence of diabetes in 2012 was 1.7 million new diagnoses/year; in 2010 it was 1.9 million.

**Prediabetes:** In 2012, 86 million Americans age 20 and older had prediabetes; this is up from 79 million in 2010.

Statistics provided by the National Diabetes Statistics Report, 2014.<sup>5</sup>



More

# From Omnis Health

For additional guides to managing your diabetes, visit:

**Embracebettercare.com**

*Information sourced through:*

American Diabetes Association. **[www.diabetes.org](http://www.diabetes.org)**

Joslin Diabetes Center. **[www.joslin.org](http://www.joslin.org)**



[www.OmnisHealth.com](http://www.OmnisHealth.com)

Information shared here should not replace advice from your diabetes healthcare team. You should work with your team to learn how to check and log your blood glucose, set health and lifestyle goals, and effectively treat symptoms of your diabetes.

1. <http://www.diabetes.org/living-with-diabetes/treatment-and-care/medication/insulin/insulin-basics.html> 2. [http://www.joslin.org/info/insulin\\_a\\_to\\_z\\_a\\_guide\\_on\\_different\\_types\\_of\\_insulin.html](http://www.joslin.org/info/insulin_a_to_z_a_guide_on_different_types_of_insulin.html) 3. [http://www.joslin.org/info/insulin\\_injections\\_vs\\_insulin\\_pump.html](http://www.joslin.org/info/insulin_injections_vs_insulin_pump.html) 4. <http://www.diabetes.org/living-with-diabetes/treatment-and-care/medication/insulin/insulin-pumps.html> 5. National Diabetes Statistics Report, 2014, <http://www.diabetes.org/diabetes-basics/statistics/?loc=db-slabnav>