

## Diabetes Medicines (pills and insulin)

Insulin is a hormone made by the pancreas gland which is located behind your stomach. The body uses insulin to get glucose (sugar) from the blood to all the cells in the body for fuel. Insulin works like a key. It opens a door for glucose to enter your cells. Diabetes is the result of the body's inability to either make or use insulin properly. Diabetes can not be cured as of yet, however, the disease can be well controlled by various treatments and medications.

There are three primary types of diabetes – Type 1, Type 2 and Gestational Diabetes. People with Type 1 diabetes need to take insulin injections every day, because their bodies no longer make insulin. In Type 2 diabetes, the body still produces insulin, but the insulin is not as effective (insulin resistance) as it needs to be to get glucose into the cells. Most people with Type 2 diabetes take either diabetes pills, insulin or both. Some individuals control their diabetes with weight loss, diet, and regular exercise. Gestational diabetes happens during pregnancy and may be related to increased insulin resistance or prediabetes condition prior to pregnancy.

### Oral diabetes medicines for type 2 diabetes

**Sulfonylureas and Meglitinides (Glyburide Amayrl, Glucotrol XL or Glipizide and Prandin)** – These drugs help the pancreas make extra insulin. Sulfonylureas raise insulin levels for several hours. Meglitinides must be taken with food and increase insulin levels for less time than Sulfonylureas. These classes of drugs can bring hemoglobin A1C percentages down by as much as two percentage points. Low blood sugar (hypoglycemia) is a possible side effect of these medicines.

**Alpha-Glucosidase Inhibitors “Starch Blockers” (Acarbose and Miglitol)** – These drugs slow down the digestion and absorption of starches and sugars. With the slower absorption, sugar levels raise more slowly after eating. Gas and abdominal bloating are common side effects with this class of drugs, but doses can be increased very slowly to lessen these side effects.

### Biguanides

**Metformin (Glucophage)** – This class of drug works mostly in the liver. It stops the liver from making extra sugar when it is not needed. The most common side effects are stomach upset and nausea. To minimize these side effects, take this medicine with food.

**THIAZOLIDINEDIONES TZD'S (Actos) (Avandia)** – This class of drugs is used to treat insulin resistance. Insulin resistance is a condition in which the body does not use its own insulin properly. By reducing the insulin resistance, a Thiazolidinediones (TZD) drug allows your own body's insulin to work more efficiently to help reduce the build up of sugar in your blood. These drugs also suppress the glucose your liver produces. Side effects of the TZD's may include weight gain, and mild swelling (edema). These drugs may be taken with or without food.

### Combinations

A combination of two different medications is available in one pill. This limits the number of pills you have to take in a day and also can decrease you out of pocket expense for medications.

### Insulin – what to know

- Insulin is normally made by your pancreas. When you eat, your blood glucose goes up. Your pancreas puts out the right amount of insulin to let the glucose go from your blood into your body's cells. In the cells, the glucose is stored or used as energy.
- People with Type 1 diabetes and some people with Type 2 diabetes do not make any insulin and need insulin by injection every day.
- Insulin does not control your blood glucose; it just lowers it.
- Your meal plan, insulin injections, and exercise program work together to control your diabetes.
- Your health care provider can use different amounts of different insulin to get the right amount of insulin working when your blood glucose goes up.
- The number of injections you need each day and the amount of each type of insulin you use depends on how much you eat, when you eat, your exercise routine, and your blood glucose goals.
- Several types of insulin exist. They work at different speeds. The chart below describes the speeds and length of time insulin works.

**Know the onset, peak, and duration of the types of insulin you use.**

- Onset: the time before the insulin starts to work.
- Peak: the time when the insulin works best.
- Duration: the total time the insulin keeps working.

**Overview of insulin**

	<b>ONSET</b>	<b>PEAK</b>	<b>DURATION</b>
<b>Bolus Insulin</b> Rapid-Acting Analog: Lispro, Aspart, Apidra	5-15 minutes	30-90 minutes	5 hours
Short-Acting: Regular	30-60 minutes	2-3 hours	5-8 hours
<b>Basil Insulin</b> Intermediate: NPH, Lente	2-4 hours	4-10 hours	10-16 hours
Long-Acting: Ultralente (Humulin)	6-10 hours	10-16 hours	18-24 hours
Glargine (Lantus)	2-4 hours	No Peak	20-24 hours
<b>Pre-Mix Analog</b> 7/25, 70/30	5-15 minutes	Dual Peak	10-16 hours
<b>Pre-Mix Regular</b> 70/30	30-60 minutes	Dual Peak	10-16 hours

If you are a registered University of Illinois student and you have questions or concerns, or need to make an appointment, please call: **Dial-A-Nurse at 333-2700**

If you are concerned about any difference in your treatment plan and the information in this handout, you are advised to contact your health care provider.

Visit the McKinley Health Center Web site at: <http://www.mckinley.uiuc.edu>