Good Insulin Management – it is in your Hands!

When blood sugar levels rise after a meal, insulin is needed to bring the sugar levels back to normal. People with diabetes have to inject insulin several times daily to achieve this effect. Blood sugar monitoring helps you to determine when and how much insulin you need to inject. Your healthcare team will work with you to select the one that is best for you.

Checking your Blood Sugar with a Blood Glucose Meter (BGM)

To prevent the negative consequences of diabetes, blood sugar levels should be kept within the healthy range. The only way to tell for sure if your blood sugar levels are too high or too low is to check your blood sugar with a blood glucose meter or blood glucose monitor. You simply take a drop of blood by pricking a finger, and the meter tells you how much sugar is in the blood at that time.

Ask your doctor about your individual blood sugar target range.

The Timing of Blood Sugar Checks

Food, physical activities and medication are the major factors that influence blood sugar levels. It is best to regularly check your blood sugar levels in order to capture your blood sugar reactions to these factors and, if necessary, make any subsequent modifications. Your diabetes healthcare team will help you determine when and how often you should check your blood sugar.

For further information and personalized advice about blood sugar and insulin management, please contact your Healthcare Professional.

Would you like to know more about diabetes? Please visit our website:
www.diabetes.ascensia.co.za

CUSTOMER SERVICE HELPLINE
0800 246 243

Caution: This brochure does not replace your Healthcare Professional advice.

Source: www.diabetes.org, www.diabetes.ca

ASCENSIA Diabetes Care

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Blood Sugar and Insulin Management for Patients with Type 1 and Type 2 Diabetes

ASCENSIA Diabetes Care

Pharmaco

Insulin – What you Should Know

Insulin is a hormone that is naturally produced by the human pancreas. Its main function is to enable the uptake of sugar into cells, thereby reducing the levels of sugar in the blood. If your body does not make enough insulin or produce no insulin anymore (type 1 diabetes) or does not properly respond to insulin (type 2 diabetes), your doctor may prescribe insulin as a medication.

Insulin takes effect in three phases:

1. **Delivery** is the time it takes to arrive in the bloodstream and start lowering the blood sugar.
2. **Peak time** is the period in which insulin has the highest level of effectiveness with respect to lowering blood sugar.
3. **Duration** is the length of time during which insulin stays effective.

There are several types of insulin, which are grouped into four main categories based on their effectiveness in the human body.

Type of insulin	Delivery (time taken to reach bloodstream*)	Peak (time taken to reach highest level of effectiveness*)	Duration (length of time it stays effective)
Rapid-acting	≈15 minutes	≈1 hour	≈2 to 4 hours
Regular or short-acting	≈30 minutes	≈2 to 3 hours	≈3 to 6 hours
Intermediate-acting	≈2 to 4 hours	≈4 to 12 hours	≈12 to 18 hours
Long-acting	Several hours	Reduces blood sugar levels relatively steadily over 24 hours	

* Time after injection

Premixed insulin is a combination of rapid-acting and intermediate-acting insulin types. There are different combinations with fixed quantities of each type to suit different patients' needs. The advantages of premixed insulin are more convenience and less risk of dosing errors; however, the disadvantage is less flexibility compared to using two types of insulin separately.

Managing Insulin

The goals of your insulin therapy are to keep your blood sugar levels within the healthy range, fit into your daily routine and support your well-being. Your healthcare team will help you reach these goals.

Type 1

If you have been diagnosed with **type 1 diabetes**, you will likely have to start insulin treatment immediately in order to efficiently regulate your blood sugar and reduce the risk of diabetes-related kidney, nerve or eye damage. Your healthcare professional will recommend the type and dosing of insulin that is best suited to your situation.

Type 2

If you have type 2 diabetes, you commonly will start with an oral diabetes pill medication. If this medication is not sufficient you may switch to insulin treatment to normalize your blood sugar and to reduce the risk of diabetes related complications of your eye, nerve, kidney or cardiovascular system.

Administering Insulin

Insulin is available in different containers and application tools.

The **syringe** is one of the most common options.

Insulin pens are prefilled with insulin or are loaded with a cartridge containing insulin. The required insulin dose is selected using a dial and injected through a very fine needle. When all the insulin has been used, the pen (or cartridge) is discarded. Pens are not available with premixed insulin, so two different pens have to be used when two types of insulin are needed.

An **insulin pump** is a small electronic box that is worn close to the body. It delivers the insulin through a so-called catheter (a small flexible tube). At the end of the catheter is a fine needle, which is inserted into the layer of fat under the skin and fixed in place with tape. There are two possible delivery methods:

1. A measured and continuous dose ('basal' insulin)
2. A discharge dose at predetermined times, usually around mealtimes ('bolus' insulin)

With insulin pumps, insulin is available 24 hours a day to help you manage your blood sugar levels.

To manage diabetes successfully, your blood sugar levels should be kept within the normal range by timing your correctly dosed insulin injections in accordance with your meals.

Where is the Best Place to Inject Insulin?

It is best to inject insulin into fatty tissue. These are located at the stomach, the outside thigh, the upper backside and the upper arms. The effect of insulin is fastest when injected into the stomach area.

If you always place your injections in the same region, the insulin effect will be more consistent. But do not inject in the exact same spot every time.

Storing Insulin and Handling Syringes Safely

When storing insulin, always check the supplier's instructions – for example, it may need to be refrigerated. If injecting cold insulin is painful for you, please refer to the suppliers' instructions on how to store the insulin container to avoid such problem. Some insulin products can be stored at room temperature (typically around 20°C in central Europe) for about one month.

If you have bought several bottles (because it might be cheaper, for example), be sure to refrigerate the extra containers. Before using a new container, remove it from the refrigerator in ample time before your next injection.

Always follow these instructions when storing insulin:

- Always look at the expiry date before injecting, and never use any insulin after the expiry date.
- Always make sure that the insulin looks normal before injecting it.
- Never store insulin near extremely cold or hot places.
- Never freeze insulin or place it in direct sunlight, and never leave it in the car.