

The main way of treating Type 2 diabetes is eating a healthy diet with weight reduction (in those who are overweight) and being as physically active as possible. When this alone is unable to control blood sugar (glucose) levels, medications to help insulin work more effectively or to make the pancreas produce more insulin is required.

Type 2 diabetes is progressive – you will require more medications the longer you have the condition.

- Sometimes, people newly diagnosed with Type 2 diabetes can manage to control their blood glucose levels by eating a healthy diet, losing weight if overweight and staying active. Others will need to take medication to lower blood glucose level at diagnosis. The most important factor is to keep glucose levels in target range which for most people will be between 4.0mmol/L – 7.0mmol/L before meals and an A1c in the 50-60 mmol/L range. This prevents/delays the long term complications associated with diabetes.
- Depending on the rate at which the blood glucose is rising, additional medications may be added:
 - The most common and oldest available drug is metformin.
 - If metformin is not suitable or effective, a drug from one of the other types of diabetes medications outlined below may be added.
 - Over time, the amount of the drug may be increased or additional ones added to maintain blood glucose control.
 - Eventually, all the available oral medications may not be enough or not suitable to use and injections will be necessary.

Your doctor or nurse prescriber will decide what medication and how much is best for you based on your medical assessment and current blood glucose levels. Listed below is a brief description of the different types currently available. **Ask your pharmacist, about the tablets you are on and make sure to get the patient information leaflet for each one.**

Biguanides , there is only one medication in this group - Metformin (Glucophage ®)	Sulphonylures can be Gliclazide-(Diamicon®), Glimiperide (Amaryl ®), Glipizide (Glibenese ®)
Metformin is the most commonly used oral medication in Type 2 diabetes and is the first choice for the majority of people.	Sulphonylures are another type of medications used for people with Type 2 diabetes. They should be swallowed whole with a meal and taken at the same time each day. Sulphonylureas work

<p>Metformin should always be taken with or after food, never on an empty stomach as much as three times a day. Metformin makes the insulin you produce work more efficiently, reduces the amount of glucose taken up from your intestines into the blood stream and controls the release of glucose from your liver. Sometimes, metformin can cause diarrhoea, nausea and abdominal bloating but these unpleasant side effects usually disappear after 4-6 weeks on the medication but also can be minimised by starting on a low dose and increasing it slowly.</p>	<p>by increasing the amount of insulin you produce from your pancreas. They are usually well tolerated but can increase your appetite which could cause weight gain. Occasionally the blood glucose can drop too low (less than 4.0mmol/L) which is known as a Hypoglycaemic episode or Hypo (refer to section on Hypos). People who take Sulphonylurea medication should always carry some form of sugar on their person (glucose tablets/sugary drink).</p> <p>Sulphonylures are used to control blood glucose levels in people with Type 2 diabetes when metformin alone is</p> <ul style="list-style-type: none"> • not controlling the blood glucose or • contraindicated or • not tolerated
<p>Nateglinide (Starlix®) is similar to the sulphonylures but has a rapid onset of action and much shorter duration of action meaning that you must take it with a meal.</p>	
<p>A-glucosidase inhibitors or prandial glucose regulators such as Acarbose (Glucobay®)</p>	<p>Insulin sensitisers (or thiazolidinediones) such as Pioglitazone (Actos®)</p>
<p>Acarbose is effective in reducing blood glucose levels by reducing the amount of glucose absorbed from the bowel into the blood stream and therefore can cause diarrhoea, nausea, flatulence and abdominal bloating. Slowing the absorption of sugar gives the cells in your body that produce insulin more time to produce adequate insulin to cover the sugars taken in a meal. Acarbose should be taken with the first bite of your meal.</p>	<p>Pioglitazone makes your insulin work more effectively by increasing the sensitivity of fat and muscle cells to insulin.</p> <p>Pioglitazone can cause fluid retention and rarely, it can cause disturbance in liver enzymes.</p>

Over the last 10 years, extensive research into how diabetes develops has identified newer ways of controlling blood glucose levels. Research studying the effect of other hormones on insulin activity led to the discovery of the *GLP-1s* and the *Gliptins*. These newer therapies are not suitable for everyone. They provide an alternative to insulin therapy for people with Type 2 diabetes who are unable to control their blood glucose levels on one or more other types of diabetes medications. The small bowel produces a hormone called **Glucagon-Like Peptide –1 (GLP-1)** which stimulates insulin production and decreases stomach emptying. However, it only acts for minutes so anything that increases how long it lasts in the body could help blood sugar control.

<p>Glucagon like Peptides 1 Agonists (GLP-1) twice daily Exenatide (Byetta®), once daily Liraglutide (Victoza®) and weekly Exenatide (Bydureon®).</p>	<p>DPP4 inhibitors such as Sitagliptin (Januvia®), Saxagliptin (Onglyza™), Vildagliptin (Galvus®) and coming soon Linagliptin (Tradjenta™)</p>
<p>These are new medications which must be given by injection, and are used mainly in people with diabetes who have a high body mass index (obese people). GLP1s acts to block the natural breakdown of GLP-1 in your body and therefore aids the digestive process of food in several ways:</p> <ol style="list-style-type: none"> 1. Stimulates the pancreas to produce insulin in response to food 2. Slows down the digestion of food which can make you feel fuller and reduces your appetite. This may help weight loss 	<p>DPP 4 is also a hormone in the gut which stops the body’s own GLP-1 from working. DPP4 inhibitors stop the body producing DPP4 and therefore makes the digestive process more efficient. It also helps the pancreas produce insulin in response to food.</p> <p>The side effects of this medication include nausea, diarrhoea, headache and sinusitis.</p>

3. Prevents your liver from releasing glucose when your body doesn't need it.

The side effects of GLP-1 Agonists are nausea, vomiting, flatulence and diarrhoea. These side effects can be reduced by starting on a low dose and increasing it slowly. Also reducing portion size and eating more slowly can help. These side effects generally resolve after 6-8 weeks of treatment. There is also a rare risk of Pancreatitis.

Insulin Injections

Insulin may also be needed in people with Type 2 diabetes when the medications listed above are not sufficient to control blood glucose levels or are no longer suitable to use. There are many different types of insulin and your doctor or registered nurse prescriber will discuss the best type of insulin for you.

All the medications outlined above aim to reduce blood glucose levels to achieve good diabetes control but will only work in combination with you eating a healthy diet and taking as much physical exercise as you can. For more information talk to your diabetes team and your pharmacist .