

Metformin

Why should I use this medication?

- You should take this medication if you are having trouble keeping your blood sugar down to a normal level. Metformin is usually the first drug people take to help them keep their blood sugar at a healthy level. Taking this medication will decrease your blood sugars, make you feel better, and lower your risk of complications.
- Taking metformin and/or other medications is only one part of a 3 point plan in the battle against diabetes. You should also make positive lifestyle changes and manage stress.

How will it make my life better?

In the first month or two, it will be a trade-off. If you are going to have side-effects, it tends to



happen in the beginning. After a while, you will experience fewer side-effects and possibly even some weight loss. Where metformin really pays off is in the long run as decreasing blood sugar with this medication can significantly reduce your risk of a heart attack, stroke, amputation, kidney problems and death.

In a large British study called the UKPDS, a 1% drop in "A1C" resulted in:

- A 14% reduction in heart attacks and death
- A 12% decrease in stroke
- A 37% decrease in negative consequences with eyes, kidneys and nerves.

How do I know it's working?

This medication should start to work right away but you may not see its full effect for a couple weeks.

You can tell if the drug is working by:

1. Checking your blood sugar on a regular basis. If the drug is working, you should start to see the numbers come down. This medication can decrease your blood sugar by up to 4 units (mmol/l), but typically around 1-2 units. Your own results depend on many things so it's not possible to say for sure how well this drug will work for you. **Example:** If your blood sugar in the morning is usually around 11 mmol/l, you may see a decrease to 7-9 mmol/l.
2. You start to feel better. Once your blood sugars come down, you'll feel less tired and not so thirsty all the time. You'll also stop going to the bathroom so often.

Your doctor or healthcare provider can tell if the drug is working by:

1. Reviewing your day to day blood sugars with you (it is very helpful if you can jot down your numbers regularly and bring them with you to the clinic).
2. Ordering a blood test called your Hemoglobin A1C. Your A1C is the best "big picture" test for your blood sugar control. It looks at your blood sugar control over the last 2 to 3 months. Metformin can usually decrease this number by 1-2 %.



Dr. Mike's Key Points

- Research has shown that Metformin is **the** first line drug for diabetes. We have lots of experience with it, it is generally well tolerated, proven to save lives and prevent disease, and can actually help patients drop a little weight along the way.

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Is there any reason why I shouldn't take this drug?

You should not use this drug if you are allergic to it. This drug should not be used and will not work if you have type-1 diabetes. Tell your doctor if you have or have ever had:

- Ketoacidosis or Lactic acidosis
- Problems with your kidney or liver
- Heart Failure
- Severe Lung Disease (i.e. emphysema)
- Polycystic ovary disease
- Problems with stomach cramps, diarrhea or pain

Acute problems such as severe burns, dehydration, vomiting, diarrhea, high fever, severe infection, severe heart failure symptoms or severe breathing problems can make your body more sensitive to metformin and increase your risk for lactic acidosis.

As well, certain medical tests that involve the use of contrast agents (a dye-like substance used to "highlight" an organ), or x-rays, may decrease the amount of urine that you produce which, in turn, could lead to too-much metformin in your body. Your doctor may want you to stop taking metformin for at least 48 hours or until he or she knows for certain that you have normal kidney function.

What about possible side effects?

The most common side effects to metformin are mainly related to the stomach and typically occur in about 30% of patients. They usually occur at the start of therapy, with higher doses and should go away with time. Side effects may include:

- Diarrhea, stomach cramps
- Passing of gas and feeling bloated
- Not feeling hungry
- Feeling nauseous and vomiting

Talk to your doctor or pharmacist about the best way to take this medicine to lower your risk of side effects.

Other side effects which occur less often (in fewer than 10% of patients) are:

- Weight loss (not all side-effects need to be bad!)
- A metallic taste in your mouth (about 3% of people)
- Low Vitamin B12 levels in the blood (about 6-8% of people): This may happen when taking metformin for a long time but it does not necessarily lead to anemia. Your doctor will likely check your vitamin levels every 2-3 years if you need to continue taking this medication.
- Lactic acidosis (where your body has a difficult time balancing the amount of acid in your blood): this is an extremely rare side effect (about 1 in 10,000 people -0.0001%) and is only a concern when other risk factors are present. Talk to your doctor or pharmacist if you have any concerns or questions

This is not a complete list of side effects. If you are concerned about these or other unusual symptoms while taking this medication, ask your doctor and/or pharmacist for more information and advice.

What if I am taking other drugs?

Always provide your doctor with a list of all other drugs you are taking (including over-the-counter medications and herbal/natural products) as they may interact and may change the safety or effectiveness of either drug. Tell your doctor specifically if you are taking any of these drugs as he/she may need to make changes or check you more closely:

- Prednisone, dexamethasone, cortisone, high dose hydrochlorothiazide (>25mg), albuterol, pseudoephedrine, olanzapine, risperidone, niacin. (These drugs may increase your blood sugar and decrease the effectiveness of metformin.)
- Other diabetes medications (glyburide or other sulfonylureas, insulin, rosiglitazone, pioglitazone, repaglinide, nateglinide, acarbose)
- Fenugreek, licorice, bitter melon, eucalyptus, ginseng and some other herbal/natural products
- Atenolol, metoprolol, propranolol and other beta-blockers. (May decrease your ability to feel the symptoms of low blood sugar).
- Cimetidine

This is not a complete list of drug interactions. Ask your doctor or pharmacist to review your list of medications.

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Dr. Christine's Pharmacist Tips:

- To decrease the chances of having problems with stomach pain and diarrhea, it is best to take this medication with food. As well, you can slowly increase your dose over a few days to a week to make sure that you can tolerate it.

Example: If you are given a prescription for Metformin to take 1 – 500mg tablet twice a day, you could take 1 -500mg tablet once a day for 3 days and then increase it to twice a day.



- If you start to have stomach pain or diarrhea, this may be because the dose is too high. If it is mild and you can tolerate it, it should go away with time. If you can't stand it, then talk to your doctor or pharmacist. He/she will likely suggest that you cut your dose in half and increase it to the desired dose more slowly.



- You should not drink a lot of alcohol when taking this medication. Not only can it increase or decrease your blood sugar levels but it can also increase your body's ability to make lactic acid and thus increase your risk for the rare side effect (lactic acidosis).
- If you have severe congestive heart failure, kidney problems or severe lung disease and especially if you become very ill with any of these conditions, it is important to stop this medication and call your doctor immediately.

Dr. Mike's Key Points

- If you are like most of my patients, you don't really like taking medications. Taking pills is easier when you can see an immediate result. If you take a pill for arthritis you feel better within an hour. Taking metformin with its ensuing decrease in A1C and your overall blood sugar may be harder to appreciate. But make no mistake about it, dropping your A1C is critical for your long term quality of life.
- Think of taking medications to lower your blood sugar like an investment: it requires some effort and commitment but it will provide large returns in the long run.