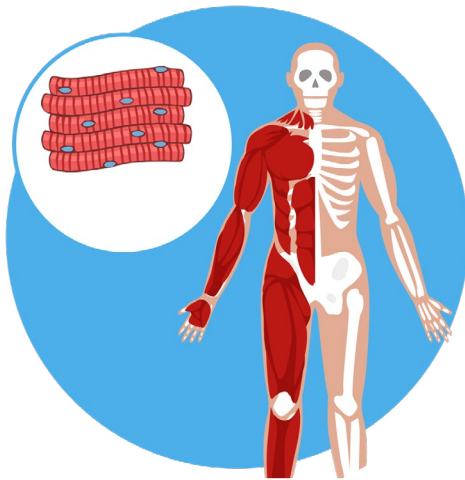


# Metformin

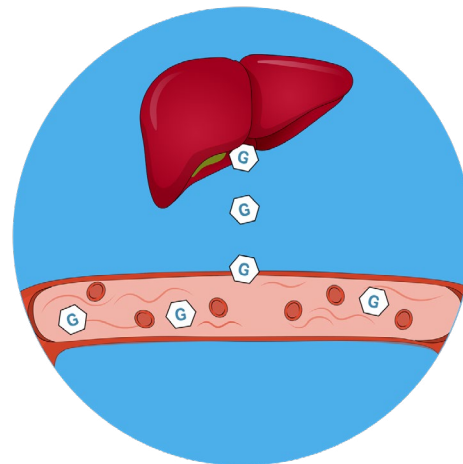


## How Does It Work?

**Metformin works in two ways:**



It helps the cells (particularly muscle cells) in the body become more sensitive to the effect of insulin.

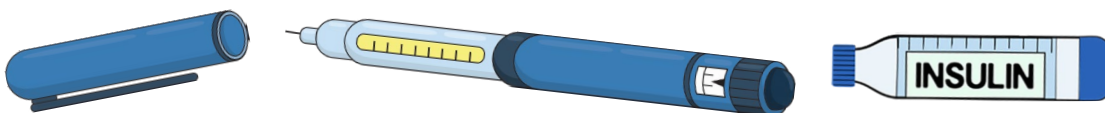


It prevents the liver from releasing too much glucose into the bloodstream.

By doing this, your body becomes more efficient at lowering the blood glucose levels.

## What Are the Benefits?

Metformin can lower your blood glucose levels to be within range and, if you are taking insulin, it can help reduce the daily doses of insulin that you need to inject.



There is a lot of experience and known benefits of metformin in insulin resistance and also in diabetes. It is often an important medication your healthcare provider will recommend.

Even if you need additional medicines later on, it would be useful for you to continue metformin.

## What Form Does Metformin Come In?

Metformin is an oral medication (medicine that can be taken by mouth). It comes in the form of tablets, a liquid and powder sachets.



**Tablets**



**Powder**



**Liquid**

All forms have the same benefits, but many people dislike the taste of the liquid form and the powder sachets require some additional preparation. For this reason, we encourage you to use tablets whenever you can.

Metformin can be given once, twice, or three times a day.

It is best taken with or after a meal.

You may be prescribed modified release tablets which don't need to be taken with food and are taken once a day.

## Are There Any Risks or Side Effects?

Metformin is very well tolerated by most young people. However, as with all medications, there are some potential side effects, including:

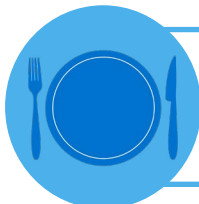
**Nausea**

**Diarrhoea**

**Stomach-ache**

These side effects are common when you first start taking metformin, but they tend to settle down after a few weeks.

To help ease these side effects, we recommend that you follow this advice for the first few weeks:



Take Metformin with or after food.

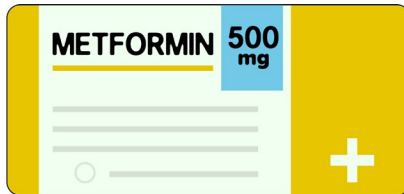
Increase the dose of metformin slowly (According to your healthcare provider's instructions) to allow the body time to adapt to the medication.



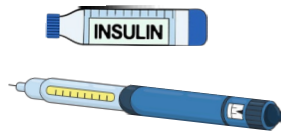


You should take lots of small sips of water to keep hydrated if you get diarrhoea.

## Can It Cause Hypos (Low Blood Glucose)?



= No. Metformin alone doesn't carry this risk.



If you are on a combination of metformin plus insulin, you might get hypos, which is why regular glucose checks are important in this case.

## Vitamin B12 Deficiency

Metformin can cause vitamin B12 deficiency by reducing vitamin B12 absorption in the gut.



Vitamin B12 is found in meat, fish, eggs, dairy products, yeast extract (such as Marmite) and specially fortified foods, so you will usually get enough vitamin B12 from your diet and won't need any additional vitamin supplements while taking metformin.



However, if you are on a vegetarian or vegan diet, we recommend you take vitamin B12 supplements to reduce your risk of vitamin B12 deficiency while taking metformin.

Your doctor may ask for a blood test once a year to check your vitamin B12 levels while you are taking metformin.

## Sick Day Rules



You should temporarily stop taking metformin if you are feeling unwell.

For example, if you:

Have a high temperature (above 38.5°C).

Have severe diarrhoea or vomiting.

Have a severe infection that needs antibiotic treatment.

Are dehydrated.

(Signs of this include being really thirsty, a dry mouth, going to the toilet less than four times a day, or dark yellow urine).

You can then start taking metformin again 24 to 48 hours after you feel better.

## Lactic Acidosis

During extreme illness, metformin can make the blood more acidic. This can develop into Lactic Acidosis (a condition in which there's too much acid in the body) and may make your illness worse.

Signs of Lactic Acidosis include:

**Stomach  
pain**

**Muscle  
cramps**

**Heavy and deep  
breathing**

**Dizziness,  
drowsiness, or  
confusion**

Lactic Acidosis is extremely rare. However, if you start to breathe very fast and deeply and become dizzy, drowsy (sleepy) and confused, you should go to your nearest emergency department or call 999 for an ambulance straight away.

## Planned Procedures

If you are due to have a procedure that uses contrast medium (dye) for example a CT scan, or a general anaesthetic (medicines that are used to send you to sleep during an operation), you will need to stop taking metformin the day before the procedure.

Contrast Medium (dye)



General Anaesthetic

You can then start taking it again 24 to 48 hours after your procedure (if you feel well and are able to eat and drink normally).