



A Guide to Pancreatic Enzyme Replacement Therapy

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What does the pancreas do?

The pancreas produces digestive enzymes. Enzymes are important for breaking down food. The pancreas usually releases these enzymes into the gut where they mix with food and break it down into pieces that are small enough to be absorbed and used by the body.

There are different enzymes to digest (break down) different types of food. These include:

‘Protease’ - breaks down protein

(Protein is present in meat, fish, poultry, beans, pulses, nuts, eggs and dairy products)

‘Amylase’ - breaks down carbohydrate

(Carbohydrate is in starchy foods such as breads, cereals, rice, pasta and potatoes)

‘Lipases’ - breaks down fat

(Fat is found in foods such as butter, margarine and oils, but is also present in meat, dairy products, snack foods such as crisps, chocolate and pastries)

Why do I need to take enzyme replacement therapy?

You need to take pancreatic enzymes because your pancreas is unable to make enough digestive enzymes, or the enzymes it is making can't get to where they are needed at the right time. This is called pancreatic insufficiency.

The most common cause of pancreatic insufficiency is damage to the pancreas due to disease or surgery to the pancreas. However there are a number of other reasons that may also lead to pancreatic insufficiency.

People having somatostatin analogue therapy often need to take enzymes because these treatments can reduce the number of enzymes your pancreas makes.

What symptoms are caused by pancreatic insufficiency?

The following symptoms are associated with pancreatic insufficiency:

- Loose stools (diarrhoea)
- Offensive smelling stools
- Stools that are pale, yellow or orange
- Stools that appear fatty, oily or greasy (steatorrhoea)
- Stools that float or are difficult to flush away
- Urgency or incontinence
- Wind, bloating or abdominal pain
- Weight loss or difficulty gaining weight
- Problematic blood glucose (sugar) levels
- Vitamin and mineral deficiencies

What happens if I don't take my enzymes?

In the short term you may experience the symptoms listed above and/or difficulty gaining weight.

Long term your body will not be able to absorb all of the nutrients you are taking in. This can lead to vitamin and mineral deficiency which may result in health problems such as poor bone health.

There are different preparations available. These include:

Types of pancreatic enzyme replacement therapy: There are different preparations available. These include:

- Capsules e.g.: Creon 10 000, Creon 25 000, Nutrizym 22 Pancrease HL
- Powder e.g: Pancrex V

The different sized capsules shown above contain different doses to suit your own preference and meal pattern.

Powder enzymes are usually only recommended for use with tube feeding.

What dose of enzymes should I take?

You have been prescribed _____

You should take _____ with meals and _____ with snacks, milky drinks or nutritional supplements.

Your dose of enzyme is usually prescribed by your doctor, specialist nurse or dietitian. Your enzyme dose is usually matched to your diet and varies from person to person.

Note that larger portions and fattier meals/ snacks will require more enzymes to digest them. For example, fried foods, curries, takeaways and pastry will all need more enzymes.

Enzymes should be taken each time you eat or have a milky drink.

Try to take them at the very beginning of your meal, snack or milky drink, ideally after the first mouthful.

If you take more than one capsule you should take half the dose at the start of the meal and half partway through.

It is important to swallow the capsules whole and to take them with a cool (not hot) drink.

What shall I do if I cannot swallow the capsules?

If you are unable to swallow the capsules whole, then you can open the capsules and mix the contents with a teaspoon of food that is soft, cold and acidic.

The following foods are suitable:

- Ketchup
- Jam
- Fruit puree
- Apple sauce
- Yoghurt

This spoon of food should then be eaten immediately and washed down with a drink. It is important that you do not have any enzymes remaining in your mouth as this may lead to mouth ulcers.

Please be aware that you are likely to need a higher dose of enzymes when you open the capsules than if you were swallowing them whole. You can discuss your doses with your dietitian, specialist nurse or doctor.

What happens if I take too much?

There is no maximum dose of pancreatic enzymes. If you take more than you need you may suffer from irritation (itching) around the anus (bottom). Please inform your doctor, dietitian or specialist nurse if you notice this symptom.

Are there any side effects associated with the enzymes?

The information leaflet that comes with the medication tells you about the uncommon side effects reported by some people. The most common side-effects of pancreatic enzymes include: nausea, diarrhoea, bloating and abdominal discomfort. However these can also be symptoms of not taking enough enzymes. If you experience these after taking enzymes discuss this with your dietitian, doctor, pharmacist or specialist nurse.

Foods that don't require any enzymes

Foods that are completely fat and protein free and made from simple sugars can be digested easily and don't usually require enzymes.

These include:

- Fruit
- Soft drinks, sports drinks or fizzy drinks
- Tea and coffee (except for lattes or cappuccinos)
- Sweets and jellies

Diabetes

If you have diabetes, you may have been experiencing low blood glucose (sugar) levels or 'hypos' as your body has not been able to digest food properly. This should improve with the help of the enzymes. Once you begin taking enzymes and start to absorb more of your nutrition there may be a rise in your blood glucose (sugar) levels. Your diabetes medication or insulin may need to be reviewed by your diabetes nurse or doctor.

Consult your dietitian, doctor or GP if:

- You suffer any unusual or unwanted side effects after taking your enzymes
- You need to alter your dose of enzymes
- Your symptoms persist
- You continue to lose weight
- You experience symptoms of high blood sugar levels such as blurred vision or excessive thirst

Dietitian:..... Date:.....

Contact details:.....

Meal / Snack example		Number of enzymes
Breakfast		
Lunch		
Evening meal		
Snack		

Please use the space below to write down any questions you may have and bring this with you to your next appointment.

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If you require this information in another format, such as a different language, large print, braille or audio version please ask a member of staff or email **patientexperience@uhb.nhs.uk**.

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