



Royal Surrey
NHS Foundation Trust

Pancreatic enzymes: a guide for patients.

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Who is this information for?

- The information in this presentation has been produced for people who have been prescribed pancreatic enzymes.
- The information here is suitable for most people. However, in some cases you may have been given slightly different information that is specific to your needs.
- Please speak to your doctor, dietitian or nurse specialist if you are worried the information here is different to the advice you have been given.

Introduction

What is the pancreas?

What causes the pancreas to stop working?

Pancreatic enzyme replacement therapy.

Getting the dose right.

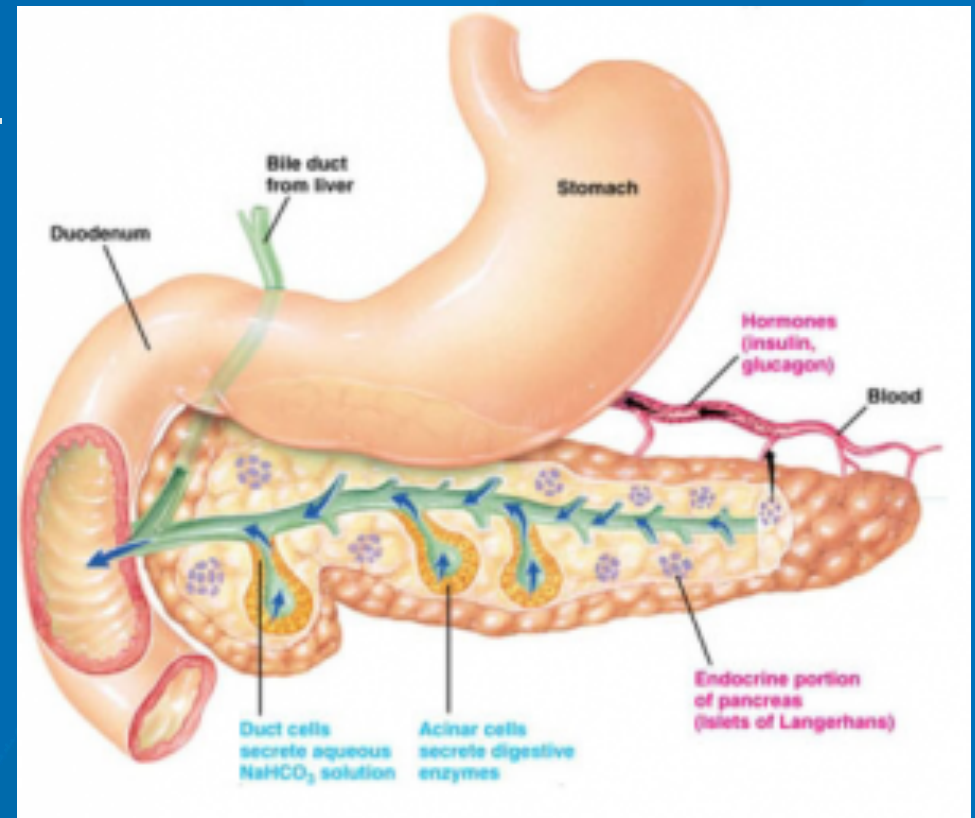
What else should I know?



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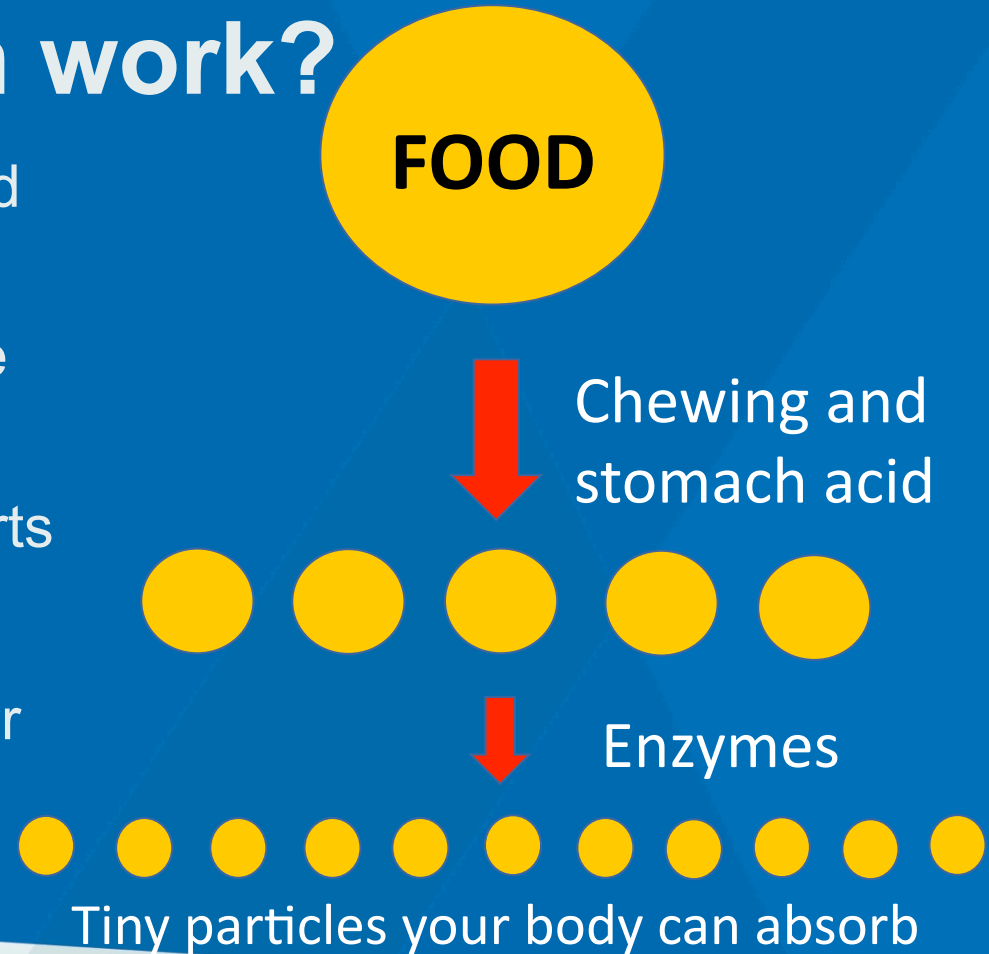
What is the pancreas?

- Oblong gland around 12.5cm x 2.5cm.
- Sits underneath the stomach, alongside the duodenum.
- Consists of:
 - Endocrine cells: which make the hormones glucagon and insulin
 - Exocrine cells – produce pancreatic enzymes and fluid. (1.2-1.5l /day).

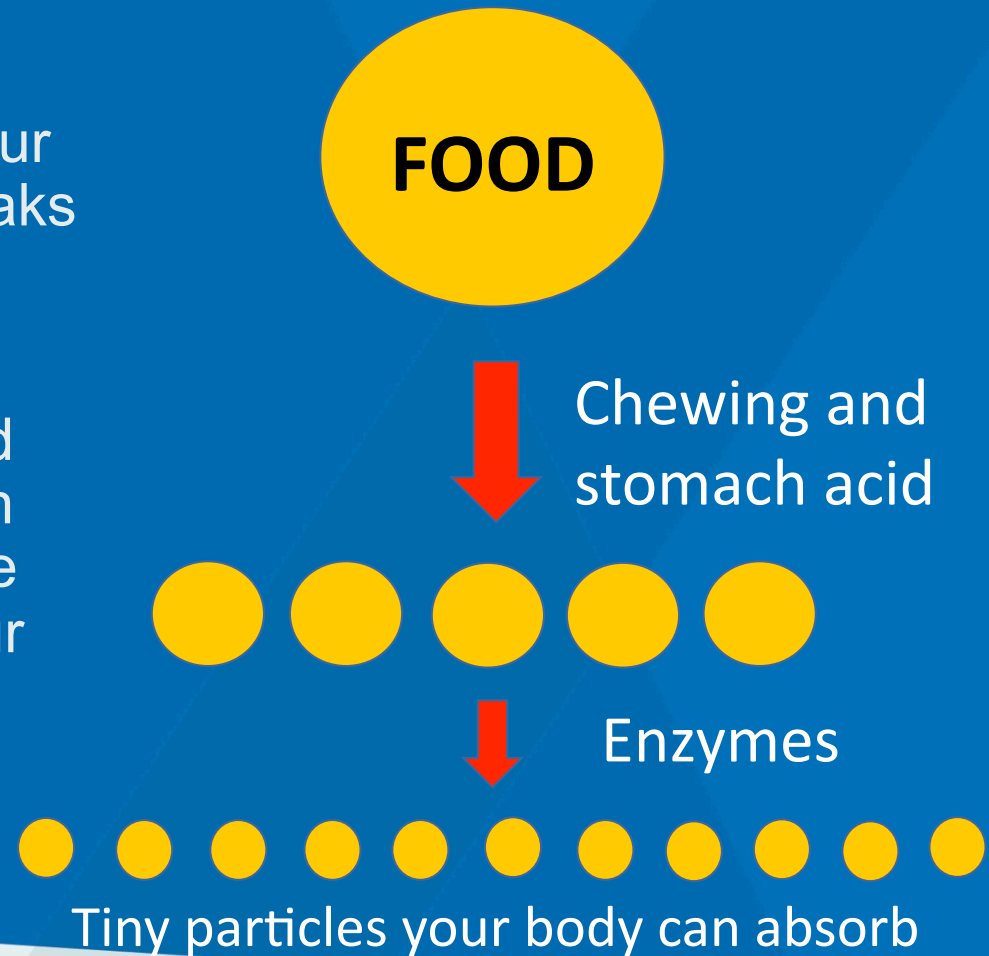


How does digestion work?

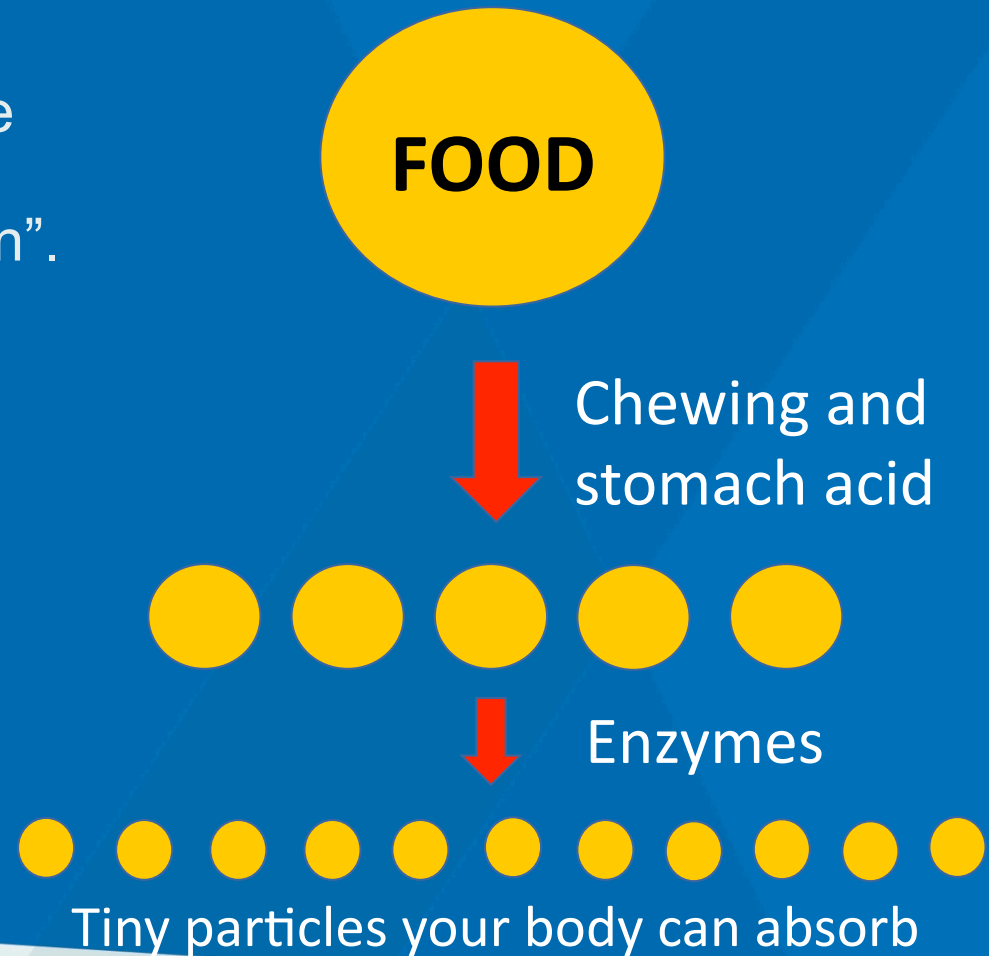
- Digestion starts as soon as food enters your mouth.
- Chewing breaks down the large chunks of food.
- The taste and smell of food starts the process of digestion as this stimulates your saliva, stomach acid and the enzymes from your pancreas.



- Once you swallow, food enters your stomach where stomach acid breaks down the large structures and enzymes start to work.
- Once this partly broken down food leaves your stomach, it mixes with bile produced in your liver, and the enzymes being excreted from your pancreas.



- The enzymes from your pancreas are not active when they leave the pancreas, they need hormones in your duodenum to “switch them on”.
- Bile (from your liver) and bicarbonate from your pancreas neutralise your stomach acid and this activates the enzymes from your pancreas.
- These enzymes will now break down your food into tiny particles your body can absorb.



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When does digestion go wrong?

- The process of digestion is complicated and there are many things that can make digestion less effective.
- For this video we are focusing on the pancreas. Please ask your doctor, nurse specialist or dietitian for advice if have other problems with digestion.

What happens when you do not digest your food properly?

- There are lots of different symptoms that could occur when you do not digest your food properly.
 - You may lose weight.
 - You may experience diarrhoea, which may be pale in colour.
 - You may notice your bowel motions are larger, more frequent or have a more unpleasant smell than is normal for you.
 - You may experience bloating and excessive wind.
 - You may develop vitamin or mineral deficiencies.

Pancreatic exocrine insufficiency (PEI)

- This is the term used when the pancreas fails to produce enough enzymes to achieve normal digestion.
- It may still produce some enzymes, and the amount of enzymes it produces may change over time.
- The pancreas can not regenerate, so pancreatic exocrine insufficiency is usually permanent, except in some cases of acute pancreatitis where the pancreas is very swollen. In this instance as the swelling settles, the pancreas may recover some of it's function.

Causes of pancreatic exocrine insufficiency (PEI)

- An operation to remove some of the pancreas.
- Cancer of the pancreas.
- Chronic pancreatitis.
- Acute pancreatitis.
- Cystic fibrosis.
- Injury to the pancreas.
- A condition where the pancreas is not “switched on” – such as after an operation to remove part or all of your stomach, or where the first part of the bowel is not healthy – such as coeliac disease.
- Other more rare conditions. Please speak to your doctor if you are not sure why you have PEI.

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Pancreatic enzyme replacement therapy (PERT)

- PERT is the term given to medicines that provide enzymes in a capsule form to help treat PEI. We use the term 'enzymes' when we talk about these products.
- There are 4 brands of enzymes available in the UK: Creon[®], Nutrizym[®], Pancrease[®] and Pancrex[®].
- Enzymes usually come in capsules, but there are other forms available if you are unable to swallow the capsules.

What do I need to know about enzymes?

- The enzymes you have been prescribed are made from the pancreas of pigs. There is no alternative to this at the moment.
- Pigs are used because, like humans, they have a mixed diet.
- Other animals have more restricted diets and will not produce the same mixture of enzymes as we need.
- Plant or fruit based enzymes (such as pineapple / papaya / rice), have not been proven to work in treating pancreatic exocrine insufficiency.
- Please speak to your doctor or dietitian if you have concerns about this.

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How much do I take?

- Everyone needs a different amount of enzymes – much like people with diabetes all need different doses of insulin.
- Most people start on a dose of around 50,000 units of enzyme with each meal and 25,000 with any snacks that you have.
- A healthy pancreas can make over 2,000,000 units of enzymes a day.
- The dose is increased until your symptoms have settled.



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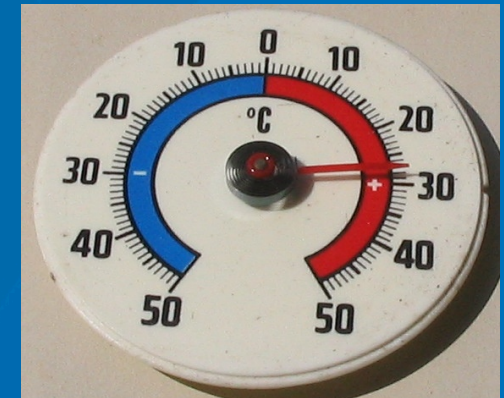
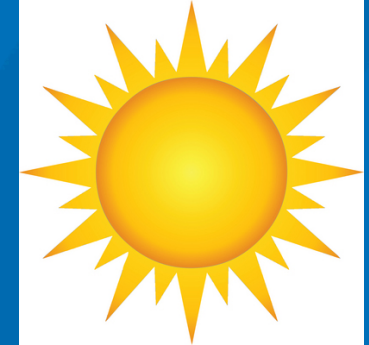
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What else do I need to know?

- Enzymes are sensitive to temperature and acid.
- Make sure you store them below 25 degrees and swallow them with a cold drink.
- If the weather gets hot, keep them in the fridge.
- Make sure they are not kept near sources of heat such as a kettle / oven / in direct sunlight or on top of a radiator.
- If you think your enzymes have got too hot, they may not work, and you will need to get a new supply from your doctor.



What else do I need to know?

- Enzymes need to mix with all of your food.
- Therefore you must take them every time you eat.
- Take half your dose at the beginning of your meal, and the other half of your dose in the middle of your meal.
- If you have a snack or a milky drink you need to take your enzymes with this as well.
- The bigger the meal, the more enzymes you will need.



What if they don't work?

- Check you are taking them at the right time – they will not work if you do not take them at the same time you eat.
- Make sure they are not too hot – check where you keep them, and make sure you swallow them with a cold drink.
- Some people will need a medicine to reduce the acid in their stomach – talk to your doctor if you are not already on a medicine that does this.
- Are you taking a high enough dose – talk to your dietitian, doctor or nurse specialist – you may need a higher dose than you are prescribed.

Do I need to change my diet?

- Most people are able to eat normally on enzymes.
- You do need to be aware of what is in your meal though. You are likely to need more enzymes if:
 - Your meal is large.
 - Your meal has a lot of fat in it.
- Your dietitian may recommend a vitamin and mineral supplement to ensure you receive everything you need.
- Some people are sensitive to certain foods, your dietitian will advise you if this is the case.

Key Points

- Pancreatic enzymes need to be taken with every meal and snack
- Split the dose across your meal
- If they are not working contact your dietitian, doctor or clinical nurse specialist, you might need a higher dose
- Make sure you swallow them with a cold drink and store them below 25 degrees.

Conclusion

- We hope you have found this information useful.
- If you have further questions please contact your dietitian, nurse specialist or doctor.
- Thank you for listening.