

Type 2 diabetes and the role of GLP-1

GLP-1 is short for glucagon-like peptide-1. Think of GLP as standing for "gut, liver, pancreas," because the GLP-1 hormone affects these 3 organs and more, as described below.

When we eat, our blood sugar rises. GLP-1 gets to work right away by telling the pancreas to release the hormone insulin to keep blood sugar in balance.

1 The gut

The gut is made up of such organs as your stomach and intestines. When you eat, a hormone called GLP-1 is released from cells in your gut. GLP-1 slows down the release of food from your stomach, which slows down the movement of sugar into your blood.

2 The pancreas

The pancreas is where the hormone insulin is made. Insulin's job is to move sugar from the bloodstream into the body's cells for energy. In people with type 2 diabetes, the beta cells in the pancreas don't produce enough insulin. This leads to too much sugar in the bloodstream instead of in the muscles and other places in the body where the sugar needs to go.

3 The pancreas

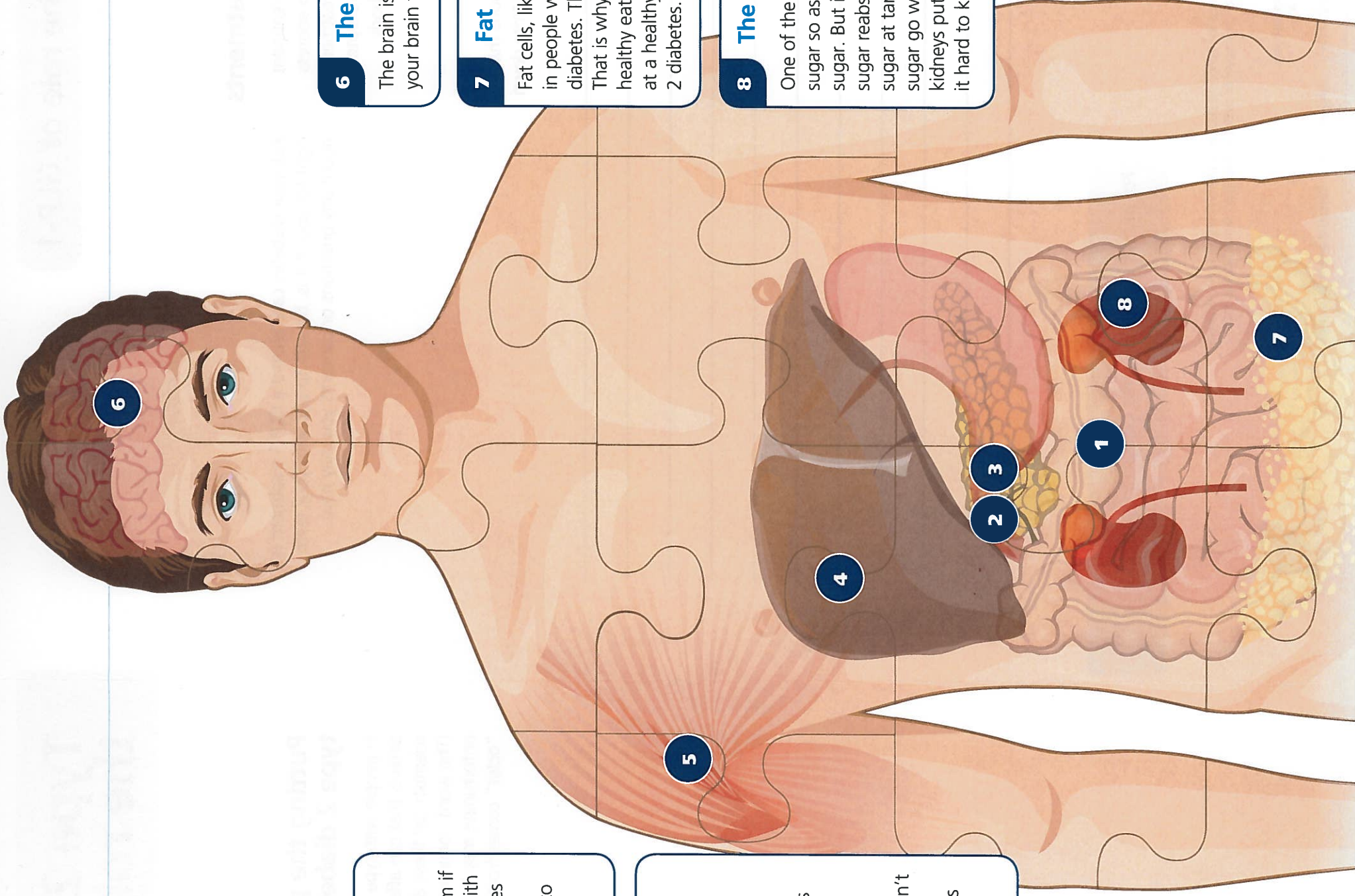
The pancreas is also where the hormone glucagon is made. Glucagon's job is to tell the liver, which stores sugar, to release sugar into the blood when your blood sugar level is too low. The release of sugar helps bring your blood sugar level back up to a normal range. This keeps your blood sugar from getting too low between meals and overnight. It also helps protect the brain, making sure it has the sugar it needs to work well. In people with type 2 diabetes, alpha cells in the pancreas release too much glucagon. This causes the liver to release too much sugar, keeping blood sugar levels high after meals and overnight.

4 The liver

The liver normally slows down its release of sugar into the bloodstream if blood sugar is high. But in people with type 2 diabetes, the pancreas releases too much glucagon. This causes the liver to release more sugar, leading to even higher blood sugar levels.

5 The muscles

Your muscles get their energy from sugar. But in people with type 2 diabetes, insulin has trouble moving sugar into muscle cells. This is called insulin resistance. Insulin resistance is one of the main reasons that people with type 2 diabetes can't get rid of extra sugar in the blood. Another reason is that the pancreas just doesn't make enough insulin to do the job. Regardless of the reason, the result is the same: higher blood sugar levels.



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The brain

The brain is also affected by GLP-1. GLP-1 signals your brain to help your body reduce food intake.

7

Fat

Fat cells, like muscle cells, can be insulin resistant in people who are overweight or have type 2 diabetes. This can cause higher blood sugar levels. That is why getting rid of some fat cells with healthy eating and by staying active and keeping at a healthy weight may benefit people with type 2 diabetes.

8

The kidneys

One of the jobs of the kidneys is to reabsorb blood sugar so as not to lose the energy stored in the sugar. But in people with type 2 diabetes, blood sugar reabsorption works against keeping blood sugar at target levels. Instead of letting blood sugar go when blood sugar levels are high, the kidneys put the sugar back into the blood, making it hard to keep blood sugar levels under control.