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# Diabetes Alters Patients' Responses to Gut Pain

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[Central processing of gut pain in diabetic patients with gastrointestinal symptoms, by Jens Brondum Frokjaer and colleagues. \*Diabetes Care\* 32:1274-1277, 2009](#)

## **What is the problem and what is known about it so far?**

People with diabetes are more likely to have gastrointestinal (digestive) problems than other people. Such problems likely have multiple causes, although diabetic nerve damage may play a central role. Nerves send and receive messages to the brain. Nerves also control the systems that digest food. High blood glucose causes chemical changes in nerves and damages the blood vessels that carry oxygen and nutrients to the nerves. More study is needed to learn how all of the body processes involved in digestion are affected by diabetic nerve damage.

## **Why did the researchers do this particular study?**

The researchers wanted to compare how the bodies of people with and without diabetes respond to digestive problems.

## **Who was studied?**

The study included 15 healthy volunteers and 14 patients with type 1 diabetes, nerve damage, and symptoms of digestive problems.

## **How was the study done?**

Researchers used a glucose clamp to control participants' blood glucose levels and then measured their sensitivity to nerve stimulation related to the gastrointestinal system. They compared the sensation and brain responses of those with and without diabetes.

## **What did the researchers find?**

Participants with diabetes were less sensitive to nerve stimulation of the esophagus and had altered and delayed brain responses to stimulation. In other words, they processed abdominal pain differently from nondiabetic participants.

## **What were the limitations of the study?**

The study included only a small number of participants. A larger study may have resulted in different findings.

## **What are the implications of the study?**

Diabetes damages nerves in the gut as well as in the central nervous system. Diabetic nerve damage not only results in gastrointestinal problems, but also affects the way that patients with diabetes process abdominal pain and digestive symptoms.

## **FOR MORE INFORMATION**

[Diabetes and digestive problems](#)

[Diabetes and nerve damage](#)

[ADA's Uncomplicated Guide to Diabetes Complications](#)