

Belly fat chatter may be what's raising your blood pressure

20 April 2015



Greg Fink is a pharmacology and toxicology professor at MSU whose research team is the first to suggest that high blood pressure may be caused by belly fat hormones. Credit: Katie Stiefel

Michigan State University researchers, who were the first to suggest that high blood pressure could be caused by belly fat hormones "talking" with blood vessels in the abdomen, have received a nearly \$7 million National Institutes of Health grant to further their work.

For years, belly fat has been linked to [high blood pressure](#), or [hypertension](#), which increases a person's risk for [cardiovascular disease](#). But scientists haven't known exactly why.

Greg Fink, a professor in pharmacology and toxicology in MSU's College of Osteopathic Medicine, is determined to find out.

"Our basic thought is that these hormonal signals, or 'talk,' between fat and [blood vessels](#) are very different in those people who have hypertension and those who don't," Fink said. "In order for us to figure out why this fat raises blood pressure, we need to understand the messages being sent."

Fink explains that there are two layers of belly fat.

The top layer, also known as [subcutaneous fat](#), lies just under the skin, can easily be removed and isn't necessarily considered unhealthy. But the layer under that, called visceral fat, isn't as easy to get rid of and can be harmful because it's wrapped around blood vessels and other organs in the abdomen.

"Too much of this 'bad' fat is what's linked to high blood pressure, heart disease and stroke," Fink said.

While the majority of research has focused on the long-distance conversations between fat and the brain or heart, Fink's research team will be focusing on the local chatter taking place between this unhealthy fat and the arteries and veins of the stomach, intestines and other surrounding organs.

"We think this chatter makes the arteries and veins in the abdomen contract, restricting [blood flow](#), and thereby raising a person's blood pressure," he said.

Fink plans to work with local surgeons in the area who will help his team study the [fat](#) found in tissue samples from consenting patients and try to determine what hormones are being produced and what they're saying.

"Theoretically, if we can identify the local conversations taking place, then we can figure out a way to change these discussions so we can lower blood pressure," Fink said.

Ultimately, this might mean a potential new drug therapy down the road for those suffering from high blood pressure.

"About 70 percent of hypertension cases are linked to obesity," Fink said. "This research could positively affect many of these individuals, if not all, and reduce their risk of high [blood pressure](#), and possibly other health problems, even if they can't lose weight. It has the chance of making a

significant impact on a large part of the population."

Co-investigators on the five-year research project include Stephanie Watts and James Galligan, both professors in the Department of Pharmacology and Toxicology at MSU.

Provided by Michigan State University

APA citation: Belly fat chatter may be what's raising your blood pressure (2015, April 20) retrieved 11 October 2022 from <https://medicalxpress.com/news/2015-04-belly-fat-chatter-blood-pressure.html>

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