

# MSU professor studies links between gastric bypass, immune system

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Pam Fraker is a professor in the Department of Biochemistry and Molecular Biology. Credit: Courtesy photo

While the massive weight loss associated with gastric bypass surgery is beneficial, some patients may face malnutrition, poor wound healing and infection as their immune systems adjust to the extreme decrease in food consumption, according to a Michigan State University researcher.

Pam Fraker, a professor in the Department of Biochemistry and Molecular Biology, is working with MSU surgeon Pandu Yenumula at Sparrow Hospital in Lansing to monitor the health of patients undergoing gastric bypass surgery and see what effects the surgery has on the

immune system and inflammation.

"The immune system is a very large and complex system, replenishing billions of new cells each day," Fraker said. "A modest depletion in nutritional intake can have a significant impact on the immune system's ability to defend the body."

Patients undergoing gastric bypass surgery, Fraker said, often see reduced inflammation and improved metabolic status as they lose weight.

"We also are trying to find out if there are any adverse effects of morbid obesity on certain facets of immune defense, and then determine if bypass surgery has beneficial effects," she said.

Using [mass spectrometry](#) — which analyzes the elemental composition of blood tissue samples and measures trace metals to monitor a patients' nutritional status — Fraker works with patients who are part of the Sparrow Weight Loss Clinic. Her team provides a progressive assessment of the patient's immune defense and measures changes in metabolic profiles and inflammatory factors before and after surgery.

Yenumula, who performs about 20 weight-related surgeries each month, said having Fraker as part of his team provides valuable insight into a patient's health as he or she recovers from surgery.

"When it comes to the morbidly obese, we have lot of research and studies that show the benefits that surgery can have on problems such as diabetes, hypertension, high cholesterol and other issues," he said. "But we need to better understand how the immune system functions and adapts as patients lose weight."

Fraker's work with gastric [bypass surgery](#) is funded by the National

Institutes of Health and MSU. While she is working with morbidly obese patients, her research also can be applied to the overweight, which accounts for 60 percent of all Americans.

Fraker and several other professors at MSU, known as the MSU Metabolic Disease Group, are looking at a group of disorders and avenues of research associated with obesity.

"Our [immune system](#) has such an impact on so many facets of our bodies that we need to know what sort of impact the obesity epidemic is having on our [immune defense](#) system," Fraker said. "Do viruses survive longer in overweight or obese people? Do normal vaccination levels work effectively? How does obesity affect stem cell biology and bone marrow growth?

"These are just some of the questions we need to address."

Source: Michigan State University ([news](#) : [web](#))

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