

MIZZOU

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Around the Columns

Running for your life

A rat's brain may be smaller than a penny, but it knows something about exercise, health and longevity.

In a recent study, John Thyfault, assistant professor in the nutrition and exercise physiology, and internal medicine departments, found that people who transition from high amounts of physical activity to inactivity exhibit negative physiological changes associated with a higher risk for type-2 diabetes.

The findings were similar to those from studies conducted by MU researcher Frank Booth, in which the running wheels of typically active rats were locked, resulting in increased belly fat and insulin resistance — also precursors of diabetes and cardiovascular disease.

Thyfault fitted physically active humans with sub-dermal glucose monitors and asked them to temporarily stop exercising. The subjects also reduced activity from 12,000 steps a day to fewer than 5,000 steps and ate the same foods at the same time, daily.

“When our subjects became inactive — even on the first day — their glucose-level spikes were much more dramatic with each meal,” Thyfault says. “It used to be thought that diabetes-induced pathologies were caused by chronic hyperglycemia [high blood sugar], but there is more evidence that these big fluctuations in glucose after meals cause oxidative stress and damage the heart and vascular system.”

Thyfault's study supports his theory that inactivity provides a platform for certain pathologies






Extra cheese, please. The metabolic similarities between rats and humans are helping MU researcher John Thyfault study diabetes risk factors. Photo illustration by Blake Dinsdale

to develop, even for someone who exercises regularly. His advice? Break up long periods of sitting at work, and try to get more than 10,000 steps every day plus regular exercise.

But if you happen to indulge in the occasional greasy burger and fries, do yourself a favor: Mimic the rats.

“In rodent models, you commonly feed them a high-fat diet to cause them to become insulin resistant and obese,” Thyfault says. “If you give them access to a running mill, the high-fat diet does not cause insulin resistance.”

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Published by MIZZOU magazine, 109 Reynolds Alumni Center, Columbia, MO 65211 | Phone: 573-882-5916
| E-mail: Mizzou@missouri.edu

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