

# Sex-specific role for glucokinase in autonomic nervous activity

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(HealthDay)—Glucokinase (Gck) in the ventromedial hypothalamic

nucleus (VMN) is involved in glucose-dependent control of autonomic nervous activity in female mice only, according to an experimental study published online July 15 in *Diabetes*.

Laura K.M. Steinbusch, from the University of Lausanne in Switzerland, and colleagues examined the role of Gck in VMN glucose sensing and physiological regulation in a study involving mice with genetic inactivation of the *Gck* gene in Sf1 neurons of the VMN (*Sf1Gck<sup>-/-</sup>*).

The researchers found that *Sf1Gck<sup>-/-</sup>* [mice](#) displayed increased white fat mass and adipocyte size compared with control littermates, and they had reduced lean mass, impaired hypoglycemia-induced glucagon secretion, and lack of parasympathetic and sympathetic nerve activation by neuroglucopenia. These phenotypes were seen in [female mice](#) only. In whole-cell patch clamp analysis on brain slices, in both sexes, absence of Gck expression did not prevent glucose responsiveness of glucose-excited or glucose-inhibited Sf1 neurons.

"Gck in the VMN plays a sex-specific role in the glucose-dependent control of autonomic nervous activity; this is, however, unrelated to the control of the firing activity of classical [glucose](#) responsive neurons," the authors write.

**More information:** [Full Text \(subscription or payment may be required\)](#)

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