

Extra fat does not act as an insulator

July 5 2016

Carrying excess fat does not contribute to a warmer body in obese mice, a new study on the insulating effects of fat finds. The article is published in the *American Journal of Physiology—Endocrinology and Metabolism*.

"Whether an insulating effect of obesity exists is of significance both for humans and for animal models of obesity," the research team wrote. Understanding how body fat works to keep mice warm is particularly important for obesity researchers. Mice used for metabolic research are often housed in cooler conditions. Nearly half of the calories they consume are burned to maintain their body temperature.

The researchers ran several different types of experiments to observe how temperature, fat and other insulators, such as fur, affected metabolism. "In contrast to established views, we demonstrate here that at least in mice, obesity is not associated with increased insulation, and obesity thus does not in this way affect the metabolism of mice," the researchers wrote. What did work to keep the [mice](#) warm was fur. The research team found fur to be a significant protector against heat loss, responsible for roughly half of a mouse's insulation.

Whether these findings would be equivalent in humans has yet to be studied. However, by wearing clothes and adjusting temperature indoors, humans are normally in a temperature-neutral environment. "Therefore," the researchers wrote, "it is doubtful that an insulating effect of obesity, even if it existed, would in any discernable way affect the development or maintenance of human [obesity](#). At thermoneutrality, no extra food combustion is required to counteract [heat loss](#), and the degree of

insulation would thus not play any role for the metabolic balance equation for normal-life humans."

More information: Alexander W. Fischer et al. No insulating effect of obesity, *American Journal of Physiology - Endocrinology And Metabolism* (2016). [DOI: 10.1152/ajpendo.00093.2016](https://doi.org/10.1152/ajpendo.00093.2016)

Provided by American Physiological Society

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