

Study finds little gender difference in the perception of ambient room temperature

May 1 2024, by Bob Yirka



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A large team of medical researchers at the U.S. National Institutes of Health, has found very slight gender differences in temperature perception of a room at ambient conditions and very few gender

differences in physiological response to a perceived chill.

In their [paper](#) published in *Proceedings of the National Academy of Sciences*, the group describes experiments they conducted with both male and female volunteers in a climate-controlled room.

Prior studies and anecdotal evidence have suggested that women, on average, feel colder when living or working in a room at typical ambient temperatures than men. But as the researchers involved in this new study note, very little research has been done to find the basis for such claims.

Therefore the research team conducted controlled experiments with healthy, lean young adults of both genders sitting in a climate-controlled room to learn more about the conditions that might lead to such claims.

The research team asked 16 women and 12 men to first undergo an analysis of several of their metabolic parameters, such as the proportion of brown adipose tissue in their body, and skin and core body temperature. Next each was asked to sit in a room for five hours as the researchers changed the temperature over short intervals of time.

All the volunteers wore clothing given to them by the researchers to make sure what they were wearing was not affecting temperature perception. Temperatures were varied from 17°C (63°F) to 31°C (88°F). At each temperature change, the volunteers were asked whether they were feeling chilly or not—they were also monitored for shivering.

In looking at their data, the research team found very little in the way of [gender differences](#)—most of the volunteers reported feeling chilly at nearly the same temperature. They also found no temperature differences for the onset of shivering.

They did find one small physiological difference, however. Women,

they noted, had what they describe as "a cooler lower temperature," than men, which meant that the [women](#) began to make metabolic changes sooner than men as temperatures dropped, helping them to stay warm. This also resulted in a slightly higher [core body temperature](#) when exposed to colder temperatures.

The researchers conclude by suggesting that [body size](#) and composition were more likely than gender to influence the perception of chilliness.

More information: Robert J. Brychta et al, The thermoneutral zone in women takes an "arctic" shift compared to men, *Proceedings of the National Academy of Sciences* (2024). [DOI: 10.1073/pnas.2311116121](https://doi.org/10.1073/pnas.2311116121)

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Citation: Study finds little gender difference in the perception of ambient room temperature (2024, May 1) retrieved 23 May 2024 from <https://medicalxpress.com/news/2024-05-gender-difference-perception-ambient-room.html>

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