

# Exposure to cold temperatures can help boost weight loss

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Regular exposure to mild cold may be a healthy and sustainable way to help people lose weight, according to researchers writing in the Cell Press publication *Trends in Endocrinology & Metabolism* on January 22nd. On the flip side, that means our warm and cozy homes and offices might be partly responsible for our expanding waistlines.

"Since most of us are exposed to indoor conditions 90 percent of the time, it is worth exploring health aspects of ambient temperatures," said first author of the article Wouter van Marken Lichtenbelt of Maastricht University Medical Center in The Netherlands. "What would it mean if we let our bodies work again to control body temperature? We hypothesize that the thermal environment affects human health and more specifically that frequent mild cold exposure can significantly affect our energy expenditure over sustained time periods."

Marken Lichtenbelt and his colleagues started studying the effects of mild cold about 10 years ago, mostly because it had received so little attention. Earlier studies of temperature primarily focused on the extreme for application to the military, firefighters, and others. But studies began to show big differences amongst people in their response to mild cold conditions. That led researchers to an important discovery: heat-generating, calorie-burning brown fat isn't just for babies. Adults have it too and some more than others.

Marken Lichtenbelt says they now have evidence to suggest that a more variable indoor temperature – one that is allowed to drift along with

temperatures outside – might be beneficial, although long-term effects still await further investigation. A research group from Japan found a decrease in body fat after people spent 2 hours per day at 17 degrees Celsius (62.6 degrees F) for six weeks. The Netherlands team also found that people get used to the cold over time. After six hours a day in the cold for a period of 10 days, people in their study increased brown fat, felt more comfortable and shivered less at 15 degree Celsius (59 degrees F).

In young and middle-aged people at least, non-shivering heat production can account for a few percent up to 30 percent of the body's energy budget, they say. That means lower temperatures can significantly affect the amount of energy a person expends overall.

So perhaps, in addition to our exercise training, we need to train ourselves to spend more time in the cold. Managing that in practice might take some convincing, however.

"Indoor temperature in most buildings is regulated to minimize the percentage of people dissatisfied," the researchers write. "This results in relatively high [indoor temperatures](#) in wintertime. This is evident in offices, in dwellings and is most pronounced in care centers and hospitals. By lack of exposure to a varied [ambient temperature](#), whole populations may be prone to develop diseases like obesity. In addition, people become vulnerable to sudden changes in ambient temperature."

**More information:** *Trends in Endocrinology & Metabolism*, van Marken Lichtenbelt et al.: "Cold exposure – an approach to increasing energy expenditure in humans."

Provided by Cell Press

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