

## Does eating fat keep the body warm in winter? <sup>[1]</sup>

1) Alice,

Is it true that eating fat keeps the body warm in cold weather?

— Land's End Ad

2) Hi Alice,

What I'd like to know is, does my body burn more calories to keep me warm when it's cold out?  
Thanks!

— Chilly in NY

### **Answer**

Dear Land's End Ad and Chilly in NY,

Brrrr, it's cold in here! Staying warm during the cold winter months isn't always easy, but with proper clothing and nutrition, you can avoid feeling cold as ice. The biological process of metabolism, fueled by eating fat, or any other type of food for that matter, may make you feel warmer. However, simply consuming fat or having more fat on your body hasn't been shown to improve insulation in cold weather. Read on for more information about balancing the benefits of fat consumption while staying warm.

Metabolism is like a bureau d'exchange, where you convert one currency to another; in this case, it converts calories to energy. This series of chemical reactions that take place in the body's cells converts calories from the fats, proteins, and carbohydrates in food to energy. This energy is used for just about every bodily function from sleeping to walking to eating. The number of calories burned, or the number of calories turned into energy, in a day depends on a variety of factors, including the amount of physical activity, the body's muscle and fat composition, and the basal metabolic rate (BMR), which is a measure of metabolism when at rest. BMR is often used as an indicator of the amount of energy required to keep vital organs functioning, or the calories required to maintain the body's most basic functions.

When you metabolize calories, the body experiences a slight elevation in temperature. In colder

environments, the body's internal temperature is at risk of dropping. To protect itself the hypothalamus (the part of the brain that's primarily responsible for regulating body temperature) sends signals throughout your body to help you maintain heat when it's cold outside. As a result, your body increases its BMR to keep its internal organs warm. Common responses to these signals include skeletal muscle contractions, in the form of shivering and [goosebumps](#) [2]. However, if it's too cold outside, the body may become hypothermic (having a core body temperature of less than 95 degrees Fahrenheit), which actually induces a decreased metabolic rate along with slowed respiratory and heart rate, as the respiratory and circulatory systems have trouble working. So to answer your question Chilly in NY, you do "burn" more calories in colder weather because of the energy required to keep the body warm, but staying in the cold weather isn't necessarily an effective calorie burning strategy (if that's what you're after).

While the idea that having extra fat acts as an additional layer to keep you warm seems like a logical theory, this isn't necessarily the case. Studies have shown that fat isn't a good insulator, rather having a greater lean body mass (the difference between total body weight and total body fat weight) is the secret to staying warm. Though the body needs fat to function, consuming too much, especially saturated and trans fats, may lead to excess fat around the organs, which has been associated with an increased risk of multiple chronic conditions, including cardiovascular disease and type 2 diabetes. To answer your question, Land's End Ad, consuming a variety of nutrients, including healthy fats such as monounsaturated and polyunsaturated fats, is key for maintaining lean body mass which helps maintain metabolism and regulation of body temperature. If you're looking for more support in getting more of these nutrients in your diet, speaking with a health care provider or registered dietitian may be helpful. For more information on the different types of fats and nutritious foods to eat, check out the [U.S. Department of Agriculture](#) [3] page on fats.

Turning up the heat may feel like a lot of extra work (and layers), but being comfortable and warm during the winter is actually pretty cool. Cue teeth chattering.

Alice!

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