

Fighting Back Against Fat

Sheila Collins, PhD, is in pursuit of ways to push the body to burn more calories

By Barbara Brody

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Sheila Collins, PhD

OCCUPATION:

Professor of cardiovascular medicine at Vanderbilt University Medical Center

FOCUS:

Fat storage

Why do some people burn off fat easily while others stockpile it? Sheila Collins, PhD, believes the answer, at least in part, may have to do with so-called brown fat. It's a central focus of her research.

Collins has been fascinated by how cells use energy (aka calories) since her days as a faculty member at Duke University. Today, her work focuses on the differences between two types of fat cells: brown fat cells, which burn energy and produce heat, and white fat cells, which store energy and, in excess, lead to obesity and increase the risk of **insulin resistance** and **type 2 diabetes**.

Everyone probably has some brown fat cells, but some people have more, and sometimes these cells don't function properly. "Our goal is to activate brown fat cells and/or turn white fat cells into brown ones," says Collins. "If you could marshal this brown fat and get it to burn a candy bar's worth of calories every day, over a year you'd have used up 15 pounds worth of fat."

Collins is using NIH funding to study several ways the body might keep the "calorie-burning" switch on, noting that there's likely more than one mechanism involved in this process. "You never want to have just one switch to control important physiological events. What if that one switch is broken?"

Collins hopes her work might one day contribute to the development of drugs that push the body to burn off more energy and, in turn, have a major impact on the obesity epidemic and the related surge of type 2 diabetes and **cardiovascular disease**.