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Black bears hibernate in unusual way

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By Thomas H. Maugh II
Los Angeles Times

Posted: Sunday, Feb. 27, 2011

Black bears have a method of hibernation previously unobserved in any mammal, researchers say.

Although their body temperature drops only about 10 degrees Fahrenheit, their metabolism falls by more than 75 percent and allows them to sleep through the winter, researchers reported in the journal Science.

Previous research had indicated that the bears' temperature did not fall like that of other animals - which often drop near freezing - during their periods of winter quiescence, and many researchers had argued that the animals don't really hibernate. But the new data on metabolism "show that bears do indeed hibernate," wrote animal physiologist Gerhard Heldmaier of Philipps University in Marburg, Germany, in an editorial accompanying the report.

The five black bears (*Ursus americanus*) in the study were so-called nuisance bears, captured because they kept nosing around too close to human communities. They were donated to the University of Alaska's Institute of Arctic Biology, where they were installed in isolated dens in the woods where they could be monitored.

"We found some surprises," said biologist

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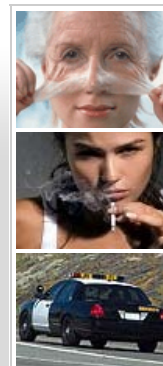
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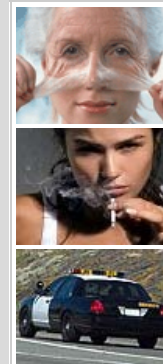


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Brian Barnes, director of the institute and lead author of the report.

Typically, hibernating mammals lower their metabolism by about 50 percent for every 18-degree drop in body temperature. The bears, however, lower their metabolism 75 percent with only a 10-degree drop, and that drop isn't constant. After about seven days, Barnes said, they start to shiver and their body temperature goes up about 8 degrees, only to start dropping again.

These temperature cycles continue through the winter, but the bears' metabolism remains low during the whole period.

When the bears emerged in mid-April, their body temperatures returned to normal, but their metabolism remained at only about 50 percent of normal for nearly a month before returning to summertime levels. If researchers could figure out how to trigger the condition in humans, experts said, it would provide a good way to preserve life following accidents or a medical emergency. In the longer term, it might make it easier for humans to endure long voyages in space.

Reducing metabolism following a heart attack or stroke might extend the "golden hour" for treatment to a "golden day" or even longer, Barnes said.

A study of the winter habits of black bears in Alaska resulted in some surprises. NEWS & OBSERVER FILE PHOTO


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