

## Everyday Activity Said Key to Weight Loss

MINNEAPOLIS - It turns out some couch potatoes spend more time on the couch than others. And that could be a key to obesity.

Researchers at the Mayo Clinic believe it's not the trips to the gym, but the everyday pacing, fidgeting and restlessness that may play a bigger role in whether someone's fat or thin, according to a small study of self-described couch potatoes.

The scientists found that the obese people they studied sat for about 150 minutes more a day on average than their lean subjects, and that meant they burned about 350 fewer calories a day.

The researchers looked at the role of routine activities such as sitting, standing, walking and talking.

If the overweight subjects could match the behavior of their lean counterparts, that could work out to a weight loss of about 33 pounds a year, the study said. And it's not necessary to go to the gym to do that.

"I think our study is a beacon of hope, because 50 years ago our biology was the same, but obesity was not prevalent in America," said the study's lead author, endocrinologist James Levine. "If we can revert to the activity levels of 50 years ago, we have the potential to reverse our obesity."

Levine, it should be noted, is no couch potato and certainly not overweight. He spoke by telephone while walking 0.7 mph on a treadmill in his office, where he's set up a computer above the machine so he can walk and work at the same time.

The activity deficit in the overweight subjects didn't reflect a lack of motivation, Levine said. Instead, he said, it probably indicates a difference in brain chemistry because even when the obese volunteers lost weight, they didn't sit still any less. Conversely, he said, when the lean subjects gained weight, they didn't sit around any more.

The researchers recruited 10 mildly obese and 10 lean people to wear special underwear, which used technology developed for fighter jet control panels. Sensors embedded in the undergarments recorded their postures and movements every half-second, 24 hours a day, for 10 days.

The underpants look like bicycle shorts; the tops resemble undershirts for the men and sports bras for the women.

The volunteers went about their normal lives except that they ate all their meals at a

Rochester hospital, scraping up every speck to leave no calorie behind.

In the next phase, the researchers fed the lean volunteers an extra 1,000 calories a day for 10 more days so they would put on pounds. The obese volunteers' meals were cut by 1,000 calories a day so they would shed weight.

Some 150 million lines of data were collected. Levine said it's the first time so much hard data has been compiled to show the different activity levels between lean and overweight people.

Levine said this field of study — non-exercise activity thermogenesis — has become so hot that he envisions the next decade will see much more emphasis on it, leading to "a world of activity and happy, active people."

The Mayo study was reported in this week's issue of the journal *Science*.

Mark Pereira, an obesity researcher at the University of Minnesota who wasn't involved in the Mayo study, called it a significant step in nailing down the role such activity in obesity. He said the results from under- and overfeeding the volunteers provides good evidence that some fundamental biological characteristic is at work.

His colleague in the university's epidemiology division, David Jacobs, said it's useful to have such hard data because people typically don't have an accurate idea of how much they move or don't. "The ability to separate movement from non-movement is a critical issue," he said.

Jacobs also cautioned that there's no simple answer to the problem of obesity, and that a lot of other factors contribute, including overeating. But he said other research also has shown that overweight people tend to conserve their movements.

"I guess the question is how you get a couch potato who is a non-mover to become a couch potato who's a mover," he said.